DOCUMENT RESUME

ED 198 227 UD 021 218

AUTHOR Sagar, H. Andrew: Schofield, Janet W.
TITLE Classroom Interaction Patterns Among Black and White Boys and Girls.
SPONS AGENCY National Inst. of Education (ED), Washington, D.C.
PUB DATE Jul 80
GRANT NIE-G-78-0126
NOTE 89p.

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Black Students: Children: Classroom Observation Techniques: Females: Grade 6: Intermediate Grades: Males: *Peer Relationship: *Racial Differences: *Racial Relations: School Desegregation: Sex Differences: Social Behavior: *Social Integration: *Student Behavior: White Students
IDENTIFIERS *Cross Race Interaction: *Cross Sex Interaction

ABSTRACT

This paper reviews published observational research that has addressed the impact of race and sex on student peer interactions and describes two studies that focused on the classroom behaviors of black and white sixth grade boys and girls. The studies were conducted in an urban middle school in the northeastern United States, a school that had been advertised as a model of integrated education. The first study consisted of coded observations of classroom behavior. The patterning of peer interactions implied was then analyzed by race and sex. The second study consisted of a sociometric analysis conducted to validate the interaction patterns implied by the behavioral data. Data from both the behavioral and sociometric studies indicated the overriding importance of gender as a grouping variable and the noticeable, though less pronounced, impact of race (or correlated variables) upon interactant choice. This paper concludes with a lengthy discussion of the implications of interaction data for the integration of schools. (GC)

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ED198227

Classroom Interaction Patterns among Black and White Boys and Girls

H. Andrew Sagar and Janet W. Schofield

Department of Psychology
University of Pittsburgh

Final Project Report
Grant # NIE-G-78-0126

July 1980

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Although school desegregation has been one of the most hotly debated domestic policy issues in the last quarter century, it is increasingly a fact of American life. The Supreme Court's historic Brown v. Board of Education ruling, which in 1954 overturned the "separate but equal" doctrine, at first had little concrete impact on the country's schools, even though public reaction was immediate and intense (Read, 1975). It was only in the late 1960's that substantial desegregation efforts began, largely as a result of federal court orders. Whereas about 98 percent of the black children in the South were still in all-black schools in 1964, about 45 percent of Southern black children were in majority-white schools by 1974 (Holsendorf, 1976). Such changes were much more dramatic in the South than in the rest of the country. However, a trend toward slowly decreasing segregation has been evident in most other regions of the country with the important exception of some large urban areas (Farley, 1975; Pettigrew, 1969). Although 67 percent of all black children were still in predominantly minority schools in the 1974-75 school year, the impact of the school desegregation efforts of the preceding decade was widely felt (Holsendorf, 1976). For example, the proportion of white Americans who reported that the grade school nearest their home was all-white dropped from 59% in 1964 to 36% in 1970. Similarly, the proportion of blacks reporting that the nearest elementary school was all-black fell from 40% to 13% during that same time period (Campbell, 1971).

At the time of the 1954 decision and for the following ten to fifteen years, there was a widely shared optimism among social scientists about the probable beneficial effects of desegregation. Social scientists' widely shared faith in contact as a means of fostering improved understanding and interracial harmony is reflected in the 1968 report of the

National Advisory Commission on Civil Disorders. The Commission urged that school desegregation be adopted as "the priority education strategy" saying:

> In this last summer's disorders, we have seen the consequences of racial isolation at all levels, and of attitudes toward race, on both sides, produced by three centuries of myth, ignorance, and bias. It is indispensable that opportunities for interaction between the races be expanded (p. 12).

In recent years, however, it has become increasingly apparent that we know next to nothing about the types of experiences which children actually have in desegregated schools. There is, for example, relatively little direct evidence about the extent to which interracial schooling actually expands the amount of interaction which occurs between blacks and whites. The evidence we do have suggests that resegregation within desegregated schools is a common problem (National Institute of Education, 1975). Furthermore, we know even less about the quality of the interracial interaction that occurs than we do about its quantity. Yet, it is obvious that unless one can characterize the quality of the interactions that do occur in at least a rudimentary way, it is difficult to know whether or not such interactions are likely to contribute to improved race relations.

The research described in this report has begun to address the very basic yet important task of exploring the nature and extent of the interracial interaction that occurs in desegregated settings. Our aim is a modest but important one: to describe and analyze the classroom behavior of children in an interracial middle school. We have not tried to choose a "typical" interracial school for study, if such an entity even exists. Neither at this very early stage of our knowledge did it seem sensible to expend the huge amounts of time, money, and effort

which would be involved in an effort to sample enough children and schools to say what occurs in desegregated schools in general. Rather, we chose to study a school which attempted to provide a positive interracial atmosphere so that we can assess what is likely to occur under relatively good but nonetheless not unrealistic circumstances.

This report of the results of our research begins with a brief discussion of some of the limitations of the existing research in the area of school desegregation and intergroup relations. This review is not exhaustive. Rather, it highlights problems or gaps which we have tried to address in the studies reported here. Then the report lays out in a fairly specific way our research objectives. Next, the report discusses the procedures and results of two separate but highly complementary studies which were performed. The final section of the report, the discussion section, relates these two studies to each other and discusses their implications.

Limitations of Previous Research

Until very recently, research on peer relationships in interracial schools has been dominated by variants of traditional sociometric techniques (Moreno, 1934), in which students are asked to name (typically) three or four of their best friends or preferred partners for some activity. Virtually without exception, the children in these studies have shown a marked preference for children of their own race and sex. (See Cohen, 1975, and Schofield, 1978, for reviews of this literature.)

The technique of having students name best friends or most preferred partners provides an extremely stringent criterion for cross-racial acceptance, especially when race is confounded (as is so often the case) with social class, academic performance, residential area, and

a host of divergent experiences and influences. Cohen (1975) has argued convincingly that, under such conditions, researchers and policy makers should defer any utopian dreams of "universal love and brotherhood" and focus instead on less intensive forms of intergroup acceptance and cooperation.[1]

One obvious method of assessing the extent of interracial acceptance and cooperation is that of systematically recording intergroup interactions as they occur. Such studies, virtually unheard of 10 years ago, now seem to be accumulating at an accelerating rate (Campbell, 1980; Francis & Schofield, 1980; Rogers & Miller, 1980; Schofield, 1979; Schofield & Sagar, 1977; Shaw, 1973; Silverman & Shaw, 1973; Singleton & Asher, 1977).

Ironically, most of the pre-1980 behavioral studies present some of the same problems of interpretation which were noted in the discussion of sociometric techniques. For example, they observed behavior in relatively unsupervised contexts (e.g., school cafeteria, free period) in which there was little, if any, task orientation. The students were free to seek out their closest friends in these settings; consequently, their interaction patterns were like sociometric choices in that they provided an extremely conservative index of intergroup acceptance. Singleton & Asher (1977) provided a lone exception, observing peer interaction in an academic classroom and finding a much higher rate of cross-racial interaction than in the studies of non-academic settings.[2]

Clearly, students' classroom interaction patterns can be markedly influenced by task demands and teacher-imposed constraints (Schofield & Sagar, 1979). Few thoughtful people would be surprised to find that more intergroup interaction may sometimes occur under such constraints than in less supervised settings like halls and playgrounds. Nevertheless,

classroom interactions comprise an important part of young peoples' social experience and are likely in many cases to provide the bulk of their experience with direct intergroup contact. Thus, it is of tremendous interest and importance to learn as much as we can about the extent and nature of those interactions.

Again, with the exception of the research by Singleton and Asher (1977), interpretability of the pre-1980 behavioral studies is limited by their exclusive focus on the amount of intergroup behavior without any attention being given to its nature. Yet, some indication of the nature of interracial interactions is quite important to an understanding of the experiences that children have in a desegregated school and how these experiences will shape their attitudes and behavior. There is no a priori reason to assume that in classroom situations the quantity of interaction (even where spontaneous) is a clear indication of its quality. Schachter (1951) showed, for example, that an opinion-deviate who could not be expelled from his group was likely to be the target of more communications than were the more modal group members, even though he was liked less. In the classroom, the child who is the butt of jokes and teasing may be much more threatened by the situation than the child who receives little attention from others.

The Joint Impact of Race and Sex

More often than not, studies of peer relationships in interracial schools have disregarded the role of gender in mediating children's social outcomes. Considering the potent role of gender-identity in interpersonal association and experience, however, it is reasonable to suppose that sex as well as race will play a role in the children's desegregation experiences. There are, for example, some indications

that males interact across racial lines more readily than females do. Singleton and Asher (1977) found that third-grade girls interacted across racial lines less often than would be expected by chance, whereas boys' interactions crossed racial lines at chance levels. Similarly, more interracial seating was evident among boys than among girls in a middle school cafeteria (Schofield & Sagar, 1977).

A rather different sex-by-race effect emerged in a study of interracial Indianapolis high schools. Whereas black males reported more frequent friendly cross-racial contacts than black females did, white boys reported more incidents of unfriendly cross-racial contact than white girls did. White males also admitted to more frequent avoidance of specific black individuals and appeared to be the group most fearful of being hit by other-race students (Patchen & Davidson, 1973). In another study, black females and white males expressed less satisfaction with their school experience than black males and white females did (Schofield & McGivern, 1979).

In her earlier ethnographic work at the school where the present studies were conducted, Schofield (1977) hypothesized that the different interaction rates of boys and girls resulted from differences in male and female peer status structures. As one might expect, given traditional sex roles, the boys' status structure appeared to emphasize physical prowess much more than the girls' did. This emphasis drew black and white boys into interaction (playful boxing, wrestling, arm wrestling, discussing which boys could "take" which other boys, etc.) as they competed for places in the dominance hierarchy. Student interview data indicated that blacks had gained the upper hand in this competition in that they were perceived by both black and white students as being the tougher of the two groups. It may be that many white males,

then, had experienced a loss of status, at least on this one dimension, which could explain their relatively lower level of expressed satisfaction with the school experience.

Black and white girls, on the other hand, encounter a rather different social situation, in which status depends more upon physical attractiveness than upon physical prowess. Little or no cross-racial interaction is required to secure one's place in this feminine hierarchy since the apparent pervasiveness of white standards of feminine beauty (Stember, 1976) gives many of the white girls an automatic and effortless advantage over many of the black girls, again possibly accounting for their differing responses to the desegregation experience.

Objectives of this Research

To date there have been no long-term, systematically quantified observational studies addressing the joint impact of race and sex upon student peer interactions. Singleton and Asher's (1977) interaction data were based on just two observation sessions per classroom. The researchers apparently recorded interactions which crossed race and gender lines simultaneously but did not analyze them, due to their relative infrequency of occurrence. Yet, given a goal of reasonable social integration across both race and gender barriers, the very infrequency of such interactions points to the importance of documenting the nature of those which do occur.

In an effort to accomplish that task, we regularly recorded the peer behavior of 92 black and white boys and girls in their sixth-grade classrooms for a period of more than four months. We chose academic classrooms because of their importance in the students' lives (at least in terms of the amount of time spent in them) and because of the oppor-

tunity they present to observe relatively frequent intergroup interactions.[3]

Decisions about which aspects of behavior to code were guided by prior qualitative analyses of those characteristics of behavior which are salient to other children and thus affect the evolution of intergroup relations (Schofield, in press -a). First, and most importantly, we decided to code the affective tone of peer interactions. Since many task-oriented classroom interactions seem to involve little obvious affect, we decided to use a more differentiated scheme than that used by Singleton and Asher (1977). Thus, we coded behavior as positive, neutral, or negative. Secondly, we recorded the form of the interaction, with particular emphasis upon noting instances of physical behaviors, both because of the possibility of group differences in the rate of such behaviors (Hartup, 1974) and because of their likely salience to the students.

We also decided to explore the extent to which behaviors were task-oriented or social. Such information seemed important since overall group differences in the amount of task-oriented behavior might undermine or reinforce traditional racial stereotypes. Furthermore, it seemed quite possible that the relative frequency of task-oriented and social behaviors might differ in interracial and intraracial interactions in theoretically interesting ways.

Another goal of the study was to determine the extent to which attraction/avoidance tendencies between the various race-sex groups were symmetrical or asymmetrical. We wondered, for example, whether black boys were more likely to initiate interactions with white boys than vice versa, and whether black girls, who had seemed to us on the basis of earlier ethnographic work to be a particularly isolated group, were more

likely to avoid, or be avoided by, members of other groups.

Rapid sampling procedures, imposed by our need for a large amount of representative data, limited our ability to answer such questions definitively with observational data. Because peer behaviors are so often mutual (friendly comments tend to elicit friendly comments, etc.), we ordinarily could not, within a brief observation interval, determine who initiated an ongoing interaction. Similarly, there is usually no way to know whether a child who is solitary at the moment of observation is so by choice. Consequently, we approached questions of mutuality indirectly, noting which person or persons were actively engaging in the interaction at the moment of observation, in the hope that the total cumulative record would enable us to detect any asymmetries in the relationships of the four race-sex groups.

Although behavior coding is the method of choice for documenting the manner in which school children actually interact, carefully conceived sociometric procedures that avoid the methodological problems discussed earlier can tell us with whom students would (or would not) <u>like</u> to interact. Such data should reveal more clearly than the behavioral data any asymmetry in attraction patterns, thereby guiding us in our interpretation of actual interaction patterns. Consequently, we have supplemented our behavioral study with a roster-rating sociometric study in which each student rated the desirability of interacting with <u>each</u> of her or his classmates in <u>various</u> <u>circumstances</u>. The sociometric study also permitted an inexpensive and non-disruptive experimental manipulation of some of the factors affecting the observable behavior patterns. This study will be described in detail following presentation of the behavioral results.

The Research Site: Wexler Middle School

Wexler Middle School (a pseudonym), located in the urban northeast, serves approximately 1800 sixth, seventh, and eighth graders from 11 different feeder schools. About two-thirds of these students are black. Although the school district is characterized by a high degree of residential and educational segregation, Wexler's main building is located in a largely non-residential area which cannot be characterized as either black or white "turf."

The school has been interracial ever since it opened in 1975; so neither its black nor its white students have been faced with the task of finding a place in a pre-existing social system dominated by the other race. The students are, however, faced with the task of constructing new social networks, since they are likely to find few if any of their former friends and classmates in their new classes. For many of these students, Wexler provides the first significant interracial contact.

The school board, which for several years has been under legal pressure to desegregate the district, had advertised the new Wexler school as a model of integrated education. The school's administrators clearly endorsed positive intergroup relations and supported a program of activities designed to help students to get to know one another (see Schofield & Sagar, 1979). Blacks and whites share high-level administrative positions; and the faculty is approximately 25 percent black, a percentage considerably higher than that in the city's overall school system. Black teachers do tend to be underrepresented in the academic areas and somewhat overrepresented in certain vocational education areas. More noticeably, almost all of the teachers' aides are black. These staffing imbalances reflect the pool of teachers available within the

city school system.

Most of Wexler's white students come from middle- or upper-class neighborhoods, whereas the black students tend to come from working-class or economically depressed neighborhoods. Furthermore, the white students have, as a group, a clear academic advantage over most of their black classmates. For example, on one fairly typical test in a sixth-grade math class, about 50 percent of the white students received A's, compared to about 7 percent of the blacks. Similarly, year-end academic honors went disproportionately to whites. For example, 60 of the 68 sixth-grade children who received awards for maintaining an A average were white, even though the student body at that time was just over 50 percent black.

The students are quick to recognize these differences in academic achievement and in overt signs of academic interest and effort:

> Sylvia (black): I ain't never seen a white person in the seventh grade cut class. When you look around, you see the black kids walking the halls . . . I guess they (blacks) don't care about learning. The white kids, when it's time to get their education, they can't wait.
>
> Ann (white): The black kids don't really care what (grades) they get . . . I don't know any black kids that are really smart . . . Some black girls in my class (are) pretty nice. They'll be happy if they get a B or a C . . . They smile and say, "I never expected to get this."

As in most interracial schools, a relatively high degree of informal segregation has been observed at Wexler, with students interacting primarily in same-race (and same-sex) groups in many situations. Nevertheless, a fair amount of intergroup interaction has also been apparent, particularly in task-oriented situations (Schofield & McGivern, 1979; Schofield & Sagar, 1979). Overt racial conflict has been rare, but both

black and white students have expressed concern over what they view as intimidation of some students by others. Those interviewed tended to agree that both black and white students were likely to be targets of such intimidation but that those doing the intimidating were more likely to be black (Schofield, in press-a),

A few fairly sophisticated students seemed quite conscious of the role that social class plays in producing the academic and behavioral differences between white and black students. The majority, however, appeared to think in terms of racial group membership which is, after all, much more visible than social class background.

STUDY 1: BEHAVIORAL INTERACTION

Selection of Classes and Students

Each of Wexler's three grades was organized, administratively and academically, into several "teams," which consisted of five "acacemic groups" of students who rotated as a group among the team's five teachers for their academic courses. Non-academic and special interest classes were conducted outside the team structure in a common facilities area. During 1978-79, the year in which the present study was conducted, two of the four sixth-grade teams were assigned academic classes in a much older and smaller annex, in order to relieve crowding in the main building. As anticipated, slightly over two-thirds of the sixth-grade students were black.

Suitability of class settings for study was determined on the basis of informal observation of class sessions and/or a simple teacher questionnaire. We sought to study those sixth-grade classes in which students had a reasonable opportunity to interact and some freedom of

choice concerning those with whom they would interact. One of the four teams was eliminated from further consideration because four of its five teachers reported regular use of assigned seating and highly structured lessons, and the fifth was unwilling to have an observer in the classroom.

Of the 15 academic groups on the three remaining sixth-grade teams, seven initially met our minimum composition criterion of at least three students from each of the four possible race-sex categories.[4] To increase the generalizability of the study, we observed each of these academic groups in at least two different class settings determined by the procedure described above to be conducive to student interaction.

Within each selected academic group, we sought to observe four students from each of the four race-sex categories. If there were only three or four students in a given category, we observed all of them; where there were more than four, we randomly selected the four to be observed.

The Coding System

Our original project work schedule had been predicated upon the assumption that we had discovered a reliable and applicable behavior coding instrument which would permit us to begin collecting usable interaction data almost at the onset of the project period. Our subsequent reluctant decision to abandon that instrument and to develop one of our own affected our activities significantly and therefore requires some comment.

The system we had planned to use was Spaulding's "Coping Analysis Schedule for Educational Settings" (CASES), modified by us to permit recording the race and sex of the students toward whom our subjects'

behaviors were directed, rather than just the nature of the behaviors themselves. We chose the Spaulding system after extensive investigation of available classroom behavior coding instruments persuaded us that it was the best suited to our needs. Unfortunately, however, the videotape provided for training observers proved to be not at all useful for our purposes. The immobile camera provided a continuous close-up view of two boys who remained seated almost the whole time and whose interactions were mostly verbal exchanges with the unseen teacher. Although the description of the CASES system had indicated that it was applicable for sampling the behavior of an entire classroom (Simon & Boyer, 1967), our attempts to use the system have made us almost certain that the reported high reliabilities were based upon instances of close-up or continuous observation like that provided by the training tape. Our initial attempts to use the system in an actual classroom (not one of the ones selected for the study) forced us to conclude that the degree of inference and closeness of observation required made CASES incompatible with our need to sample rapidly and sequentially the behavior of students scattered about the classroom. Alternative sampling strategies involving more continuous, close-up observation of one or a few students at a time were not seriously considered because of their highly reactive potential with this self-conscious age group.

Our early attempts to simplify and adapt the CASES system eventually resulted in an almost entirely new system which involves coding each observed interaction on four different dimensions. That is, in addition to coding the race and sex of the interactant, we coded the Source of the interaction (subject, interactant, or mutual), its Form (physical vs. all others), its affective Tone (positive, neutral, negative/aggressive), and its Task Orientation (task-related, non-task-

related). Our working definitions of these categories will be discussed in the context of the related analyses.

The revised system, like CASES, permits examination of the quality as well as the quantity of peer interactions. It was designed to depend even more heavily than the Spaulding system on motor behaviors and non-verbal signals in order to permit a quick characterization of peer behaviors from a discreet distance. Coding guidelines are attached to this report as Appendix A.

Design and Procedure

Observers for this project were a white male, a white female, and a black female who divided her observation time between this and a related project in the eighth grade (Francis & Schofield, 1980). Three of the seven academic groups selected for observation were randomly assigned to observer pairs to permit a check on interobserver reliability. The remaining four groups were randomly assigned to single observers.

Following preliminary observation of the classes selected for study, but prior to formal data gathering, we took a few minutes of class time to tell the students that we were from the University, collecting data for a research project. We said that we were interested in how students worked alone and together and how they used their class time for social and academic purposes; we did not mention the specific coding categories or our interest in race and gender. We pointed out that the students' names were not on the coding form, emphasizing its abstract check-list nature and our interest in aggregate statistics rather than the behavior of specific individuals. Curious students were allowed to see the coding form, which was purposely ambiguous in appearance.

Each observer spent approximately 20 class periods coding interactions in each of the academic groups assigned to her or him. Whenever possible, an observation period covered an entire class session, which was generally 40 minutes to one hour in length. Observers followed a 15-second observation/coding cycle, with five seconds for observing the designated student and ten seconds for coding the student's behavior and locating the next student in the sequence. The students in each academic group were always observed in the same randomly determined continuous sequence, but the observer began the sequence at a different point for each new observation period. In some classes we felt free to move around the perimeter as we coded; in others we attempted to post ourselves in different positions on different days so that we would not consistently be observing some students more closely than others.

Observer Training

We had to move with uncomfortable speed in developing our new system and in training observers to use it if we were to begin formal data collection early enough to address the questions of interest to us. We took several steps to speed up the process. For example, we selected the students to be observed and had the observers attend classes to learn the students' names before we had even completed developing the instrument. Furthermore, the observers tested the coding system as it was being developed and actively participated in its modification so that they were quite familiar and comfortable with it by the time we began formal data gathering in late January. To further increase the speed with which observers learned to use the system, we plagued them with written examples of potentially difficult or ambiguous interactions for them to code and discuss.

Rapid accomplishment of the vital tasks of instrument development and refinement, observer training, and reliability assessment was greatly facilitated by the fact that a related observation project in the predominantly white eighth-grade accelerated classes depended upon the same coding instrument. We were able, for example, to hold a number of meetings in which observers from both projects discussed difficulties with the system and compared their coding decisions on actual and hypothetical situations. We were also aided by the six-month extension of the project period which permitted us to postpone attention to data handling and initially to concentrate all our attention on data gathering and system refinement. Thanks to shifted priorities and an extra observer shared with the eighth-grade project, we were able to collect usable data from six classes rather than the four originally planned, further improving the generalizability of the findings and increasing the size of our total data set to nearly what it would have been without the delayed onset of coding.

Inter-observer Agreement and Reliability

Three of the seven classes selected for study were assigned two observers each (representing all possible pairings of the three observers) to permit a check on inter-observer agreement. We generally put one observer at a time in a class, pooling the data of both for the general analyses. Occasionally, however, both observers coded simultaneously, synchronizing their observations so that they were watching the same students at the same time.[5] The observers received feedback on the extent of their agreement and, more importantly, upon the patterns of their disagreement. Thus, we continued throughout the data-gathering period to clarify ambiguities in the coding criteria and to

work toward greater convergence among the observers.

One of our greatest concerns in having to rely upon a hastily-developed coding instrument was that our data would involve too large an error component to be useful for analysis. Percentage of agreement is not the most appropriate indicator of inter-observer reliability in this case, since chance alone should have produced 50 percent or greater agreement on whether or not to code an observed behavior into any given category. Consequently, we used as our measure of agreement Cohen's kappa, which disregards all agreement expected under chance (Cohen, 1960), as indicated by the following formula:

$$K = \frac{\% \text{ agreement} - \% \text{ chance agreement}}{100 - \% \text{chance agreement}}$$

Even by this conservative index, quite a high level of agreement was achieved in recording the race-sex category of the peer interactant. With trials in which only one observer recorded an interaction counted as disagreements, the mean agreement (K) on the race-sex category of the interactant was .81. When only trials in which both observers saw a peer interactant are considered, the mean kappa for the interactant race-sex code was .90. Thus, although the coding system was developed rapidly, the inter-observer reliability for coding the race and sex of the interactants was quite high.

Measures of agreement in coding the nature of observed interactions were based solely upon trials in which both observers coded the same interactant (as indicated by agreement on the race-sex code). The kappas for the behavior categories were considerably lower than those for interactant race and sex, ranging from .20 for "negative/aggressive" to .72 for "non-task," with an overall mean of .44. These relatively low indices simply indicate that the behavior coding was not sufficiently reliable to permit inferences about any single behavioral episode; such

was never a goal of this study. The kappas represent, rather, a substantial "true score" component in the trial level data which can be presumed to be systematic and cumulative over repeated observations (in contrast to the error component which is assumed to be random and non-cumulative; see Hartmann, 1977).

Most of the analyses to be reported here were performed on cumulative category proportion scores derived from all observations of each individual's interactions. An inevitable and major source of unreliability in these cumulative scores is the normal day-to-day and moment-to-moment variation in people's behavior in response to constantly changing stimuli, fluctuating mood, and varying task constraints. Thus, an individual's cumulative score for any given behavior category will depend in part upon when that individual happened to be observed. For us to draw any generalizable conclusions about the interactions among Wexler's black and white males and females, however, there must be at least an element of consistency within the variation.

Unfortunately, the students' trial-to-trial behavioral variability, combined with inter-observer coding differences, leaves us unable to demonstrate reliability at the level of individuals' behavior category scores. Correlations between cumulative behavior category scores for the same individuals observed by <u>different</u> <u>observers</u> at <u>different</u> <u>times</u> ranged from -.02 to .39, with a mean of .15. We should emphasize that these correlations represent the reliabilities of individual scores, whereas the analyses to be reported are based upon the <u>aggregate</u> of all the students in the race-sex categories under consideration, with correspondingly higher reliabilities. The low reliabilities of the behavior category scores are nevertheless disappointing, though perhaps not surprising considering the conditions we faced in trying to develop

a new coding system after the designated data-gathering period had already begun on and the wide day-to-day variation in the situational constraints on behavior in a given classroom.

Having now, in the interest of "full disclosure," gone through this rather detailed discussion of reliability, we must now take pains to clarify the relationship between score reliability and the reliability of the rather interesting findings to be reported here. Low reliability means that true, but modest, relationships are likely to be overlooked (i.e., statistically non-significant) because the error variance will be large relative to the effect variance. On the other hand, a statistically significant F - value points by definition to a reliable effect since the systematic effect variance is large even in relation to the error variance. The terms comprising the F - ratio can in fact be converted to a coefficient of effect reliability as illustrated by the following formulae (McNemar, 1969):

$$F = \frac{\text{Effect Mean Square}}{\text{Error Mean Square}}$$

$$r = \frac{\text{Effect Mean Square}}{\text{Effect Mean Square + Error Mean Square}}$$

A more readily interpretable statistic, however, is the reported p-value which is simply the prior probability of a purely chance effect of the size found, given the degree of unreliability (random error) in the data. As will become evident, most of the findings to be discussed here can safely be considered "true" effects.

BEHAVIORAL RESULTS

Between late January and early June, 1979, we recorded a total of 3028 peer interactions over 13,771 five second coding intervals.[6] This large body of data was reduced to a series of cumulative scores for each

subject. First, and most simply, we calculated the number of peer interactions recorded for each subject, relative to the total number of observations of that subject. Second, we counted interactions with each of the four race-sex peer groups as a proportion of each subject's total peer interactions. Finally, we counted each of several interaction types as proportions of each subject's total set of interactions with each of the four race-sex groups.

Overall Frequency of Interaction

We were interested primarily in the patterning of black and white boys' and girls' ingroup and intergroup interactions. In order to interpret these patterns properly, however, we needed to know whether our proportion scores were based upon similar or grossly different overall interpersonal activity rates by each of the four (race-sex) subject groups. To explore this question, we conducted an analysis of variance (Academic Group by Subject Race by Subject Sex) on the subjects' overall peer interaction totals, adjusted for variations in the frequency with which each subject was observed.[7] A statistically significant Subject Sex effect, F (1, 68) = 6.87, p = .011, reflected the tendency for males to have a somewhat higher overall interaction rate than females, $\bar{X}$ = 35.6 vs. 29.1. The mean interaction rate was slightly higher for black students than for white students, $\bar{X}$ = 34.5 vs. 30.3, but this Subject Race effect was not statistically significant, F (1,68) = 2.86, p = .095. There was no statistical interaction between Subject Race and Subject Sex, F (1, 68) < 1. Not surprisingly, the largest systematic variance in individual interaction frequencies was associated, not with Subject Race or Sex, but with Academic Groups, F (5, 68) = 4.92, p = .001. The adjusted Academic Group means ranged from 18.1 to 40.4, with an overall

mean of 32.4. This study was not designed to compare academic groups; we were not able to relate the pattern of means to any obvious differences among the groups or their teachers. (Recall that the term "academic group" merely designates a collection of students who attend academic classes as a group; it carries no necessary connotation of academic status).

In summary, the data give no clear indication of race-related differences in overall peer interaction rates. Boys were involved in interactions somewhat more often than girls were; but this difference, though statistically significant, was dwarfed by the large variation in frequency from one class or academic group to another. Hence we turn to the more central questions of, first, the pattern of interaction rates with ingroup and outgroup children and, ultimately, the types of interactions within and between groups.

Interaction Rate Analyses

Since there were more black than white students in the classes we observed (and thus more black than white potential interactants), we planned to adjust the interaction rate scores for the various interactant groups accordingly. We calculated not only the proportion of each student's total peer interactions which involved interactants from each of the four race-sex groups (Observed Rates), but also the proportion of all available interactants who belonged to the corresponding race-sex groups (Expected Rates). We then calculated two different sets of adjusted scores, one expressed as the ratio of Observed to Expected Rates, the other as the arithmetic difference between them.

Preliminary analyses suggested that these adjustments had not removed the influence of class composition upon calculated interaction rates as anticipated, but had instead simply reversed the relationship. That is, the adjusted rate of interaction with members of any given group tended to

be lowest in the classes in which the group was most strongly represented. As shown in Table 1, the expected positive relationship between the unadjusted interaction rates and class composition is very small; the slightly larger negative correlations between class composition and the two sets of adjusted rates indicate that the adjustments, although intuitively reasonable, impose an unwanted relationship.

Insert Table 1 about here

Although the above pattern of relationships slightly complicates our interpretation of observed interaction rates, it is interesting in its own right. If we could assume, for example, that interaction choice involves an important random selection component over and above consideration of factors associated with race and sex, then, interaction rates should be substantially influenced by class composition. In apparent contradiction to such an assumption, the students appeared to interact primarily within small subgroups whose composition had little to do with the composition of the larger academic group.[8] For example, boys who prefer to interact with other boys can be expected to form small, mostly male, circles of primary interactants whether the total class composition is thirty or seventy percent male. Even if the psychology is similar in these two cases, interaction scores adjusted for classroom composition would obviously diverge sharply. Such scores would tell us more about classroom composition than about the interaction tendencies of the boys. Consequently we decided to use unadjusted rates as having the more straightforward interpretation. Those few cases in which the very modest relationship between these rates and class composition may affect the proper interpretation of our results will be noted and treated

Table 1

Mean Intercorrelations among Interaction Rate Indices and Class Composition

	Ratio	Difference	Composition
Unadjusted	.84	.94	.09
Ratio		.91	-.26
Difference			-.24

accordingly. As will become apparent, the issue of class composition will be statistically irrelevant for our subsequent analyses of interaction types within and between groups.

Interaction Rate Results

Table 2 shows the distribution of each subject group's interactions with children in the four race-sex categories. As anticipated, the peer

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Insert Table 2 about here

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interactions were predominantly ingroup, with 63 percent[9] of all coded interactions occurring between children of the same race and sex. (In contrast, under an extremely unlikely null hypothesis of purely random selection of interactants, we would have expected only 22 percent of the interactions to be within both race and sex). Gender was clearly the more potent grouping factor, as indicated by the large Subject Sex x Interactant Sex effect, F (1, 68) = 1748.44, $p < .001$. This effect reflects the fact that 88 percent of the recorded peer interactions occurred between same-sexed pairs, in contrast to the 48 percent expected under a random pattern. The race grouping tendency (Subject Race x Interactant Race) was less pronounced than the sex grouping effect, but very clear nevertheless, F (1, 68) = 99.98, $p <$ .001, with 70 percent of the total interactions occurring between children of the same race, compared to a calculated chance expectancy of 50 percent.

The strong tendency for school children to interact primarily within gender and racial categories has been documented in other studies (Campbell, 1980; Schofield, 1979; Schofield & Sagar, 1977; Silverman & Shaw, 1973). Less attention has been given to the more complex, but potentially important, joint influences of race and gender. These joint influences have been one

Table 2

Distribution of Peer Interactions (Proportions) over Interactant Categories

Subject Sex	Subject Race	Interactant Group WM	BM	WF	BF
Male	White	.57 (.16)	.35 (.28)	.04 (.22)	.05 (.34)
	Black	.20 (.20)	.64 (.24)	.04 (.22)	.11 (.35)
Female	White	.05 (.20)	.03 (.28)	.65 (.17)	.28 (.35)
	Black	.04 (.20)	.12 (.28)	.18 (.22)	.66 (.30)

Note. Figures in parentheses indicate the proportions expected under the assumption of random interactant choice within each classroom. The proportions are systematically lowered in the case of ingroup interactions by the fact that subjects cannot be their own interactants.

of the central concerns of our research at Wexler. For example, our earlier study of cafeteria seating patterns (Schofield & Sagar, 1977) had indicated a higher rate of interracial adjacencies among boys than among girls. In the present study, we tested the generalizability of this gender-related pattern to classroom behavior and found that interactions among boys were more likely to be interracial than those among girls, although the difference was not dramatic (31 percent for boys versus 26 percent for girls, t (68) = 2.87, $p < .01$).

Just as the degree of racial ingrouping seems to be partially gender-dependent, the degree of gender ingrouping appears to be related to racial identity, as indicated by the very clear Subject Race x Subject Sex x Interactant Sex effect, F (1, 68) = 16.63, $p < .001$. Thus, although there is a strong tendency for same-sex interaction within both racial groups, the gender barrier appears to be considerably less extreme in the case of the black students, whose interactions were about twice as likely as those of the white students to cross gender lines (14.7 versus 6.5 percent, respectively).

Two of our expectations concerning the joint impact of racial and sexual identity were not supported. Inspection of the values on the diagonal of the interaction rate matrix in Table 2 reveals no greater ingrouping tendency among black females than among either black males or white females, especially in comparison with the rates expected under the assumption of random interactant selection. Furthermore, although cross-race, cross-sex interactions were generally quite infrequent, those involving white males and black females were no less common than those involving black males and white females, $\bar{X}$ = 4.4 percent and 3.5 percent, respectively, with corresponding chance expectations of 27 and 25 percent. These two failures to find expected differences raise questions concerning the validity of some

aspects of the previously discussed speculations about the psychological and social position of black females in desegregated schools, at least as they pertain to preadolescents in classroom settings. The issues thus raised can be given more satisfactory consideration after we have reported the related findings about interaction source, interaction types, and sociometric choice patterns.

Interaction Source

The preceding discussion of interaction rates makes no distinction between peer behaviors originating with the subject and those directed toward the subject. As a practical matter most, but not all, peer-directed behaviors can be expected to involve some degree of participation by both the initiator and the target, even if only one of the parties emits a codable overt behavior within the designated five-second observation interval.[10] Our rapid sampling procedure ruled out the possibility of routinely identifying the initiator or dominant party in ongoing interactions. We did, however, attempt to identify the immediate source of the specific peer behavior recorded within any given observational interval. The accumulated body of this source data enables us to search for general patterns of one-sidedness or imbalance in cross-race and/or cross-sex peer behaviors.

Table 3 presents the proportional Source distribution of coded behaviors within each of the sixteen possible subject/interactant category combinations. A statistically significant Source x Subject Race effect, F (2, 90) = 5.43, $p < .01$ reflects the fact that black subjects were more likely to be recorded as the source of peer interactions than white subjects were, as is apparent from the subject group means in the table. The interactant group means similarly reflect the Interactant Race x Source effect, F (2, 90) = 3.70, $p < .03$ with black interactants relatively more likely than white

Table 3

Proportions of Peer Behaviors Originating with Subjects and Interactants by Race and Sex Categories

Subject Sex	Subject Race	Behavior Source	Interactant Group WM	BM	WF	BF	Subject Group Means
Male	White	Subject	.31	.20	.43	.31	.31
		Mutual	.50	.58	.46	.43	.49
		Interactant	.19	.21	.11	.26	.19
	Black	Subject	.44	.33	.59	.44	.45
		Mutual	.45	.49	.31	.43	.42
		Interactant	.11	.18	.10	.12	.13
Female	White	Subject	.16	.23	.27	.13	.20
		Mutual	.47	.42	.55	.53	.49
		Interactant	.37	.35	.18	.34	.31
	Black	Subject	.48	.25	.37	.33	.36
		Mutual	.40	.57	.41	.46	.46
		Interactant	.12	.18	.23	.21	.18
Interactant Group Means		Subject	.35	.25	.42	.31	.33
		Mutual	.46	.52	.43	.46	.47
		Interactant	.19	.23	.15	.23	.20

Note: Scores represent proportions of the total number of recorded interactions within each of the 16 (subject group x interactant group) combinations.

interactants to be recorded as sources rather than recipients of peer behavior. The combined effect of these complementary patterns becomes clear when we combine the data from all the interracial cells: The collapsed means indicate that whites were the source in 18 percent of the interracial interactions, and blacks in 38 percent; 44 percent of the interactions were coded "mutual."[11] This suggestion of an imbalance in black-white peer relations will be explored

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Insert Table 3 about here
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further in the analyses of the sociometric data.

The Source ANOVA also revealed a Subject Sex x Source effect of borderline significance, with male subjects somewhat more likely than females of the same race to be sources rather than recipients of interactions, F (2, 90) = 3.01, p = .054. Because of the large number of F-tests performed in these analyses, we are not inclined to take this one marginal result very seriously, except as a partial reflection (along with the more reliable race effects) of a very consistent pattern with regard to white females. These children, whether observed as subjects or as interactants, were predominantly coded "recipients" rather than "sources" in their interactions with members of each of the other three subject groups (see Table 4).

Insert Table 4 about here

Tone[12]

Observers characterized the tone of each recorded peer interaction as (1) positive, (2) neutral/ambiguous, or (3) negative/aggressive. Recognizing the evaluative connotations of these category labels, we must emphasize that our coding procedures stressed descriptive rather than evaluative criteria

Table 4

Proportion of Intergroup Interactions in which White Females Were Sources and Recipients

	Interacting Group		
Role	White Males	Black Males	Black Females
Source	.14	.16	.18
Recipient	.40	.47	.35

(see instructions under "Tone" in the coding manual, Appendix A). Facial expressions, verbal statements, and overt motor behaviors which were negative in appearance (from a conventional, middle-class point of view)[13] were placed automatically in the "negative/aggressive" category regardless of the actor's presumed intent. Physical blows, verbal or non-verbal threats, obscene gestures, and insults were all regarded "negative/aggressive," by definition, even when the observers suspected that the specific behavior being coded was playful or meant in jest.[14] This approach, although not wholly satisfying, was deemed necessary because of the unreliable relationship between affect and overt behaviors and of the resulting potential for undefined and uncontrolled biases in the observers' subjective inference processes. In the present analysis, then, differences in "Tone" do not necessarily indicate differences on an affective or friendly/unfriendly dimension; they do reflect differences in overt interactive style among the various subject groups.

Table 5 shows the proportional distribution across the three tone categories for interactions occurring within and between race and gender groups. The principal finding is a Subject Race x Tone effect, F (2, 78) = 9.12, $p < .001$, reflecting the fact that the white subjects' peer behaviors were coded "positive" proportionately more often than those of the black subjects, 68% vs. 51%, respectively. Note, however, that the black subjects' peer behaviors were not any more likely to be coded negative than the white subjects' peer behaviors were, 7% vs. 8%, respectively.

Insert Table 5 about here

Note also that there were no tone effects involving interactant race. That is to say, although there was some difference in the overall tone of peer behaviors by black and white subjects, neither group seems to have responded differentially to black and white peers on this dimension. Thus, the Subject

Table 5

Race and Sex Effects on the Distribution of Peer Interactions among Tone Categories

Subject Race	Tone	Interactant Race: White	Interactant Race: Black
White	Positive	.67	.69
	Neutral/Ambiguous	.27	.23
	Negative/Aggressive	.07	.09
Black	Positive	.52	.49
	Neutral/Ambiguous	.42	.43
	Negative/Aggressive	.06	.08

Subject Sex	Tone	Interactant Sex: Male	Interactant Sex: Female
Male	Positive	.58	.54
	Neutral/Ambiguous	.37	.36
	Negative/Aggressive	.04	.10
Female	Positive	.65	.60
	Neutral/Ambiguous	.21	.39
	Negative/Aggressive	.14	.01

Note: Scores represent proportions of interactions within each subject group by interactant group cell falling into each of the three Tone categories.

Race effects appear to reflect stylistic differences rather than intergroup conflicts.

The repeated measures analyses of variance also revealed a modest Subject Sex x Interactant Sex x Tone effect, F (2, 78) = 3.61, p = .03. Inspection of the lower portion of Table 5 reveals that the within-sex proportion of negative or aggressive interactions was quite low among the boys and near zero among the girls. In contrast, cross-sex interactions, which have already been shown to be relatively rare, were proportionately more likely to be coded negative/aggressive than within-sex interactions were. The female subject, male interactant cell is especially interesting since it is highest on both negative/aggressive and positive proportions, with neutral or "matter-of-fact" behaviors toward males being relatively rare. This dearth of neutral cross-sex behaviors is most apparent in the white female subjects' behaviors toward males, 79 percent of which were coded "positive," 14 percent negative/aggressive, and only 7 percent neutral/ambiguous. These latter percentages, based on just 31 cross-sex behaviors by seven white females, must be regarded as merely suggestive. The implied Subject Race x Subject Sex x Interactant Sex x Tone interaction was statistically marginal, F (2, 78) = 2.95, $p < .06$.

Task Orientation

The observers coded all recorded interactions as either "task-related" or "non-task" in appearance, using the "ambiguous" classification only when no reasonable basis for making such a distinction was presented (see Appendix A for full instructions to observers). Table 6 gives the proportional Task Orientation distribution of peer interactions within and between the two racial groups. A repeated measures ANOVA revealed no Subject Race effects in Task Orientation, but it did indicate an Interactant Race x Task Orientation effect, such that peer behaviors involving white interactants were more likely

to be coded "task-related" than were those involving black interactants,[15] F (2, 78) = 5.36, p = .007. No significant sex effects emerged in this analysis.

Insert Table 6 about here

Physically Aggressive Peer Behaviors

We took a special interest in those peer behaviors which were coded both "physical" and "negative/aggressive," hereinafter referred to as "physically aggressive."[16] As indicated in the preceding section, observers used a broad, minimally evaluative, definition of "negative/aggressive," encompassing those behaviors which were negative in appearance but which included play acting or jest. "Physical" was also broadly defined to include implied or threatened physical contact as well as actual contact (see Appendix A). Even with these broad definitions, the proportion of interactions coded physically aggressive was negligible for each of the four subject groups (Table 7). The repeated measures ANOVA on these proportion scores failed to detect any systematic differences among the subject groups.

Insert Table 7 about here

Even occasional physically aggressive behaviors, however, are likely to be extremely salient to those who observe or experience them. Consequently, we examined the raw frequencies of the subject's physically aggressive behavior toward peers in each of the four race-sex categories (Table 8). The clearest effect in this analysis was that of Subject Race, with black students engaging in physically aggressive peer behaviors more frequently than white students did, F (1, 68) = 13.99, $p < .001$. There was also a Subject Sex effect, with males engaging somewhat more often than females in such behaviors, F (1, 68) = 6.59, $p < .02$. (Note, with regard to both of these effects, that actual

Table 6

Task Orientation of Peer Interactions
Within and Between Racial Groups

Subject Race	Task Orientation	Interactant Race: White	Interactant Race: Black
White	Task-related	.55	.44
	Non-task	.26	.43
	Ambiguous	.20	.13
Black	Task-related	.57	.39
	Non-task	.25	.35
	Ambiguous	.19	.26

Note: Values represent proportions of total interactions in each cell.

Table 7

Proportion of Peer Interactions Coded Physically Aggressive by Subject and Interactant Groups

Subject Sex	Subject Race	Interactant Group WM	BM	WF	BF
Male	White	.002	.007	.000	.000
	Black	.021	.023	.018	.018
Female	White	.071	.000	.000	.000
	Black	.075	.020	.000	.008

frequencies are very low, with individual means less than one in every cell). These race and sex effects reflect a tendency for black males to engage in physically aggressive peer behavior more frequently than other groups. (The implied Subject Race x Subject Sex interaction was marginal, F (1, 68) = 3.69, $p < .06$).

Insert Table 8 about here

There were no statistically significant interactions between Subject Race or Sex and Interactant Race or Sex, and the tendency apparent in Table 8 for subjects to direct more physically aggressive behavior toward blacks than toward whites was not statistically significant. Physically aggressive behaviors were directed toward male interactants more often than toward female interactants, however, F (1, 69) = 6.94, $p < .01$.[17] This pattern presents a notable contrast to our more general finding that qualitative differences in the peer behaviors of the four subject groups reflect stylistic differences rather than differential responses to the various interactant groups. Although the data are not reliable enough to permit sensitive analyses at a cell-by-cell level, the means in Table 8 suggest that all groups, including females, generally avoid directing physically aggressive behaviors toward females. White females, in particular, appear virtually exempt from receiving such behaviors.

Table 8

Mean Frequencies of Peer Interactions Coded Physically Aggressive, by Subject and Interactant Groups

Subject Sex	Subject Race	Interactant Group WM	BM	WF	BF
Male	White	.05	.09	.00	.00
	Black	.21	.50	.04	.13
Female	White	.04	.00[a]	.00[a]	.04
	Black	.08	.08	.00	.13

Note: Because the total number of observations per subject varied from one subject to another, this number was entered into the analyses as a convariate. The difference between the adjusted means, shown here, and the unadjusted means was consistently less than .01 but did affect rounding in some instances.

[a]These zeros, which represent the true frequencies in these cells, have been substituted for the conceptually problematic adjusted frequencies of -.006 to increase the readability of the table.

STUDY 2: A SOCIOMETRIC STUDY[18]

Intergroup attitudes, as assessed by questionnaires, have been justly criticized as rather poor predictors of specific intergroup behaviors (Wicker, 1969). Conversely, we might complain with equal justification that most specific behaviors are unreliable indicators of intergroup attitudes, since behavioral responses are variable and multiply-determined (Fishbein & Ajzen, 1975). Weigel and Newman (1976) have shown that the correspondence between self-reported attitudes and behavior is likely to increase as the number of behavioral criteria increase. Unfortunately, the time, expense, and practical problems involved in observing an adequate sample of behavioral episodes are often prohibitive.

The study described in the preceding sections went well beyond most earlier studies of intergroup behavior in its long-term, repeated behavior sampling, resulting in information on over 1,000 intergroup interactions and nearly 2,000 within-group interactions. Even this data set was rather small, however, in relation to the moment-to-moment variability of the students' peer behavior. The set of cross-sex behaviors recorded for each of the four subject groups was especially small, with the result that many of the statistical comparisons among groups were not as sensitive as we would have liked.

The sociometric study to be described here provided a relatively inexpensive means of validating some of the patterns implied by our behavioral data. Unlike many sociometric studies, it was not limited to an assessment at close or intense relationships since the students rated all of their classmates. The ratings can be considered to represent real rather than hypothetical partner preference patterns since the students anticipated that these ratings would be used to determine actual partner assignments.

We did not construe the sociometric study as a direct replication of the more laborious behavioral study since it reflects the students' unilateral preferences. These preferences, though, can be related to the observed interaction patterns and guide us in their interpretation. For example, private sociometric choices do not directly induce reciprocation as overt peer-directed behaviors often do; consequently, they should be more sensitive than the interaction data to any inbalance in the relationships among the race/sex groups.

Our behavior coding procedures characterized interactants solely in terms of race and sex. It was not feasible to code them as individuals or to record their other characteristics. The sociometric data, in contrast, differentiates among interactants within race-sex categories, enabling us to assess the relative impact of race, sex, and perceived academic ability upon peer preference under systematically varied conditions. These conditions were task-versus-social interactions, on the one hand, and high-versus-low intimacy on the other.

We anticipated, in general, a replication of the pattern found in the interaction rate data--namely, a strong preference for same-sex partners and a significant, but lesser, preference for same-race partners, particularly in the social situation. The task situation, by promising attractive rewards to successful pairs, seemed likely to put a premium on the perceived ability of prospective partners, so that race and sex matching per se should become relatively less of a consideration, as the (mostly white) high ability partners become more attractive to all groups. However, a more intimate and prolonged task interaction should cause the students to give greater consideration to likely discomforts and satisfactions inherent in the interaction itself and to weigh these against the attractiveness of the anticipated extrinsic reward. Consequently, we expected in the high intimacy task situation a partner choice

pattern intermediate between those manifested in the social and the low intimacy task situations, with race and sex matching and perceived ability all playing a significant role.

Procedure

Data were collected from all sixth-grade academic groups housed in the main school building. (Four of these were among the six classes involved in the behavioral study). The students were told that their classes had been selected to evaluate a new learning method. The experimenter explained that this method provided a small amount of free time for the students to talk with their friends and that he needed to know with whom they wanted to spend this social time. The children then received class rosters and indicated on 7-point scales how much they would like to spend the social time with each of their classmates.

Then the experimenter said that the class would be studying the mathematical concept of correlation, and he explained the concept briefly. He emphasized that math ability was strongly related to success in learning about correlations. At this point, four classes received the "low intimacy" description and five received the "high intimacy" description of the learning task.[19] (The experimenter had been blind to the experimental condition up until this point).

Low Intimacy: In the low intimacy condition, students were told that they would be given a lot of information about two students from another school to use in the math exercises. This information, which included the student's height, weight, waist size, etc., as well as information about the student's home and family, would be the raw material for the math problems. The students were told that they would work in pairs and that, since the experimenter could not give the students grades for doing well, he would give prizes (e.g., T-shirts, candy, money, and posters) if their pair succeeded on the problems.

The reward interdependence of pairs of students was emphasized. The students then indicated how much they wanted each of their classmates as work partners, using 7-point scales identical to those used previously.

High Intimacy: The reward structure and prizes were the same as in the low intimacy condition. However, the students were told that the personal information they would use in the math exercises (weight, pulse rate, etc.) would be information about themselves and their partner. Also, they were told the task would last three hours as opposed to the 30 minutes expected in the low intimacy condition. Then, as in the low intimacy condition, the children indicated on 7-point scales how much they wanted each of their classmates for work partners.

Finally, students in both intimacy conditions rated their own math ability and that of all their classmates. The experimenter explained that this would help familiarize him with the students before he started to teach them.

Each subject's ratings of his or her classmates were converted to standardized scores (z-scores). That is, the total set of each child's responses on a given type of rating (e.g., work partner preference) were transformed so that they had a mean of zero and a standard deviation of one. For the sake of comparability, the children's math achievement scores (from standardized tests administered by the school) were also converted to z-scores within each class. Each transformed score, then, represented the rated child's standing relative to others in the same class.

Ability Ratings

Table 9 shows the students' mean ability ratings, broken down by the race and sex of those giving and receiving the ratings. The corresponding

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Insert Table 9 about here

Table 9

Tested and Perceived Math Ability by Student Race and Sex

	Rating Recipients			
Rating Source	WM	BM	WF	BF
Achievement test[a]	.51	-.42	.76	-.31
White male students[b]	.37	-.40	.87	-.45
Black male students[b]	.40	-.36	.74	-.37
White famale students[b]	.20	-.51	.95	-.24
Black female students[b]	.27	-.55	.72	-.05

[a]Values are mean z-scores, standardized within classes and then averaged across all members of each race-sex group in all classes.

[b]Value are mean z-scores, standardized within subjects and then averaged across all rating recipients in each race-sex group.

math achievement scores are also provided, for sake of comparison. As anticipated, ratings of perceived ability were correlated with the race of the rated students, $r = .70$, with all subject groups perceiving a clear academic advantage among the white students as a group. If we accept the standardized achievement test scores as a criterion, however, we find that neither the black nor the white subjects overestimated the difference between the black and white student groups.[20] The correlation between tested achievement and perceived ability was .87. It should be noted that these ability ratings were obtained near the end of the school year, after the students had had an extended opportunity to observe one another's academic performance.

Perceived ability also correlated modestly with the sex of the rated students, $r = .25$. More specifically, as Table 9 shows, white females were perceived by all subject groups to be the group highest in math ability.

Factors Influencing Social and Work Partner Preferences

Regression models were developed to predict social and work partner preferences. Predictors were Perceived Ability, Same Sex, Same Race, and the interaction of each of these terms with Intimacy (High or Low).

Significance tests of the Beta weights show which factors are incorporated in the preference decisions. The non-interaction terms indicate the importance of the predictors across situations. The interaction terms show which factors are used differently in the high and low intimacy conditions.

As shown in Table 10, Sex, Perceived Ability, and Race all influenced social partner choice. However, Perceived Ability entered the regression equation before the Same Race variable. Perhaps the most striking finding is the relatively large impact of Same Sex compared to the other variables. This relatively large effect remained when the regressions were not run step-wise

Table 10

Regression Predicting Preference for Individuals as Social Partners in High and Low Intimacy Conditions

Variable	Beta	F
Same Sex	.52	730.82***
Perceived Ability	.25	76.75***
Same Race	.13	49.22***
Intimacy X Ability	-.08	7.80*
Intimacy X Race	-.03	2.37
Intimacy	-.02	1
Intimacy X Sex	-.01	1

Multiple R for Equation = .77

R^2 = .59

***p < .001

**p < .01

*p < .05

as they were to generate Table 11 but with other variables constrained to enter before Same Sex.

Insert Table 10 about here

Table 11 shows that Sex, Perceived Ability, and Race all significantly influenced work partner choice as well. The interactions between these factors and Intimacy are of particular interest. As anticipated, children who expected that the task situation would require prolonged contact and the sharing of personal information placed less emphasis on ability and more on ingroup membership when deciding with whom to work. This occurred in spite of the fact that pre-testing suggested the rewards for ability-related success were highly valued.

Insert Table 11 about here

Partner Preference Patterns

To facilitate a more strightforward comparison with our earlier analysis of the students' behavioral choice patterns, we reanalyzed the sociometric data using a repeated measures analysis of variance. Toward this end we computed, for each subject, the mean rating given to members of each race-sex group. These means were computed separately for the social partner and work partner ratings. The within-subject factors in this analysis, then, were Partner Race, Partner Sex, and Interaction Type (Social or Work). Grouping factors were Subject Race, Subject Sex, and Intimacy (High or Low). We did not attempt in this analysis to control for perceived ability, choosing instead to leave it naturally confounded with race and sex as in the behavioral interaction data.

Table 11

Regression Predicting Preference for Individuals as Work Partners in High and Low Intimacy Conditions

Variable	Beta	F
Same Sex	.56	482.20***
Perceived Ability	.43	277.04***
Same Race	.16	37.97***
Intimacy X Ability	-.12	22.31***
Intimacy X Same Sex	.08	9.15**
Intimacy X Same Race	.05	3.95*
Intimacy	.01	1

Multiple R for Equation = .77

R^2 = .59

***p < .001

**p < .01

*p < .05

Cell means of the partner preference ratings are shown in Table 12.[21] The overall pattern of these ratings, collapsing across the social and task situations, generally replicates the previously discussed behavioral interaction rate patterns. The predominant impression gained from the sociometric data is, once again, that of a very strong gender grouping tendency, coupled with a significant,but lesser, race grouping tendency. Other, less obvious, effects were also generally consistent with the interaction rata data, as will become apparent in the paragraphs to follow.

Insert Table 12 about here

The strong Subject Sex x Partner Sex interaction, F (1, 155) = 546.68, $p < .001$, took the expected form: Male subjects gave mean z-score ratings of .43 to male prospective partners and -.39 to female partners, indicating a systematic tendency to choose other boys as partners. The corresponding means from female subjects were -.53 for male partners and .70 for female partners, indicating that girls too show preference for others of their own sex.

The Subject Race x Partner Race interaction, F (1, 155) = 41.36, $p < .001$, represented a clear same-race preference on the part of the white subjects, who gave mean ratings of .38 to white prospective partners and -.17 to black partners. The black subjects gave ratings of .00 to both white and black partners. The reader should bear in mind that these means have been collapsed across the social and task situations. They can be interpreted more adequately later in this section, after we have separated and compared the means for the two very different types of situations. Note, however, that this finding of an overall same-race preference among white, but not black, subjects does not contradict the general racial aggregation pattern found in the behavioral data. It should be obvious that the actual rate of black interaction with white students depends in large measure upon the white

Table 12

Social and Work Partner Preference Ratings by Race and Sex of Subject and Target Group

Subject Sex	Subject Race	Target Sex and Race: WM	BM	WF	BF
Social Partner Ratings					
Male	White	.76	.36	-.39	-.58
	Black	.30	.52	-.53	-.42
Female	White	-.53	-.66	1.36	.41
	Black	-.50	-.56	.37	.65
Overall Social Rating		.01	-.08	.20	.02
Work Partner Ratings					
Male	White	.75	.21	-.14	-.56
	Black	.33	.24	-.12	-.40
Female	White	-.35	-.65	1.57	.10
	Black	-.35	-.60	.53	.59
Overall Work Rating		.09	-.20	.46	-.07

Note: Values are mean z-scores, standardized within subjects and then averaged across all rating recipients in each race-sex group.

students' own interracial interaction tendencies, since it is difficult to sustain an interaction unilaterally. Furthermore, our earlier finding that blacks more often than whites were the sources of observed interracial interactions is consistent with this asymmetrical choice pattern in the sociometric rating data.

A Subject Race x Subject Sex x Partner Sex interaction, F (1, 155) = 11.50, $p = < .001$, also paralleled the interaction rate data by confirming that gender aggregation tendencies were less pronounced among black than white subjects. The black subjects gave mean z-score ratings of .44 to same-sex prospective partners and -.44 to cross-sex partners, in contrast to a same-sex rating of .69 and a cross-sex rating of -.48 by white subjects.

Recall that an a priori t-test on the behavioral data confirmed a modest tendency for boys to manifest a higher proportion of interracial interaction than girls did. The implied Subject Race x Subject Sex x Partner Race interaction was significant in the present analysis, F (1, 155) = 4.10, $p < .05$, and the planned contrast was again significant t (155) = 2.30, $p < .02$. Examination of the cell means in Table 12 reveals, however, that this apparent tendency for females to prefer same-race partners to a greater extent than boys do is accounted for almost entirely by the tendency of white girls, in particular, to express a remarkably strong preference for partners of their own race and sex.

When Subject Race and Sex are disregarded (i.e., when we collapse across subject categories), clear partner preferences are apparent, as seen in the overall social and work preference ratings shown in Table 13. In general, white partners tended to be rated higher than black partners, F (1, 155) = 41.36, $p < .001$, and females received higher ratings than males, F (1, 155) = 20.52, $p < .001$. It should be noted that these effects reflect, in part, the very high ratings that white females gave to each other.

In light of the previously noted differences in perceived ability among the four student groups, it should not be surprising that the preference ratings given white prospective partners (and, to a lesser extent, those given to female partners) are even higher in the rewarded task situation than in the social situation.[22] Table 12 shows that the black students' tendency to prefer black partners in a social situation completely disappeared in the specified task situation (which, it must be recalled, offered the prospect of concrete, prompt, and highly attractive rewards). At the same time, the white students became even more ingroup in their partner preferences, which is to say that the desirability of white partners was increased for them just as it was for the black students.

These preference shifts on the part of both the black and the white students seem to reflect a rational response to a specific reward contingency which made the black-white disparity in perceived math ability highly relevant. The shifts illustrate both the potential malleability of intergroup interaction patterns and the danger of ignoring real or perceived group differences in academic skill performance when encouraging intergroup cooperation.

DISCUSSION

The data repeated here clearly indicate the overriding importance of gender as a grouping variable among these sixth-grade students. They further document the noticeable, though less pronounced, impact of race (or correlated factors) upon interactant choice. This pattern of interacting primarily within sex and secondarily within race was apparent in both the behavioral and the sociometric (especially the social partner choice) data. Schofield's (in press-a)earlier ethnographic study of the school noted a similar pattern, as did our quantitative analysis of cafeteria seating at Wexler (Schofield & Sagar, 1977). This finding is certainly not unique to Wexler Middle School, for virtually every study assessing the impact of gender and race upon interaction and friendship patterns among children of junior high school age or younger has drawn a similar conclusion (e.g., Campbell, 1980; Krenkel, 1972; St. John & Lewis, 1975; Singleton & Asher, 1977, 1979).

Even though racial aggregation has been shown repeatedly to be statistically secondary to gender aggregation for this age group, it has naturally been the more salient focal point in the growing body of desegration research. (See Cohen, 1975, McConahay, 1978, St. John, 1975, Schofield, 1978, and Stephen, 1978, for reviews). Consequently we will discuss racial ingrouping first and then turn our attention to gender grouping as a less explored, but potentially important, issue. In doing so, we shall at times go beyond the present data, drawing upon earlier ethnographic work at Wexler and upon the work of other investigators as we seek to interpret our current findings and speculate about their implications.

Racial Clustering

The students' tendency to group themselves along racial lines does not prove, in and of itself, that they were responding directly to racial cues. In interviews conducted earlier (during the first year of Wexler's operation) many teachers and students expressed the view that this clustering simply represented the continuation of friendships formed in the area's racially isolated neighborhoods and elementary schools. That explanation can hardly hold more than a partial truth, however, since most of the Wexler students found themselves in classrooms with few, if any, of their old neighborhood friends. Some of the interviewed students, when questioned further, acknowledged that their new friends tended to be of their own race as well.

Simple continuation of prior friendship patterns also fails to explain the apparent asymmetry that we found in black-white relationships. Although our five-second coding interval did not permit us to identify the initiator or dominant partner in any given interaction, the total data set indicates that black students tended overall to be the more active participants in those interracial interactions which did take place. This is perhaps not the only interpretation at our rather abstract finding that blacks were more likely than whites to be coded as sources of interracial peer behavior, but it is highly consonant with these comments by a black female student at Wexler:

> Some white kids act conceited. They don't want to talk to you. . . . You be talking to them and they'll talk to you for about a minute or so, and then they'll go over to their other friends and act like they don't know you. (Schofield, in press-a).

Not surprisingly, some of our white student informants attributed the highly circumscribed interracial interaction to very different causes, claiming that many black students, especially females, wanted nothing to do with whites and often ostracised those peers who became too friendly with whites. We do not

claim that such allegations are wholly without foundation, but our quantitative data do not point to such an interpretation of the general pattern of racial clustering at Wexler. Not only were black students more likely than whites to be the source of observed interactions, they also appeared on the sociometric questionnaire to be at least as open as white to the prospect of interracial social interaction, and more open to interracial task interaction. In particular, the observed tendency for girls to remain more racially isolated than boys proved, upon examination of the sociomatric data, to reflect the strong ingroup preferences of the white females. Black females tended to be socially isolated, as St. John (1975) had previously noted, but the isolation does not appear to have been entirely self-imposed.

In general then, it was the white subjects of this study, more so than the blacks, who seemed inclined to keep to themselves. White females showed the greatest ingroup orientation of all, a finding corroborated by preliminary analyses of playground interactions at another interracial school (Rogers & Miller, 1980).

The racial aggregation and sociometric imbalance at Wexler may well have been exacerbated by societal norms and generalized group images. We believe however, that these observed departures from true social integration are direct and important reflections of the very real gap between the average socio-economic and achievement levels of Wexler's black and white students. Children of both races clearly discerned the black-white achievement gap, and their perceptions of one another's ability generally proved to be the best predictors of work partner preference on the sociometric questionnaire.[23] Work partner preference was not strongly related to race <u>per se</u>, but the practical result of the achievement gap was that blacks regarded most whites as attractive work partners, whereas the whites generally did not reciprocate this attitude. Behaviorally, this lack of mutuality means that most voluntary academic cooperation occurs between

children of the same race, despite the apparent desire of many blacks to work with higher-achieving whites.

Race and Social Interaction

The SES-related achievement gap found in many desegregated schools often presents a formidable barrier to the spontaneous evolution of cooperative interracial relationships. (See Schofield, in press-b, for a fuller discussion of this issue). Nevertheless, most readers who recall their own school days will realize that not all peer interaction is directed toward academic goals, even in academic classrooms. Nearly one-third of the peer behaviors observed at Wexler were coded as non-task related. The incentive structure for such interactions would be expected to differ markedly from that influencing academic interaction. Fortunately, the sociometric portion of our investigation was able partially to separate academic and social incentives in a way that the behavioral observations could not.

The instructions to rate social partner (rather than work partner) preferences exerted a marked influence on the students' choice patterns. With the acacemic incentive removed, there was in general less of a premium upon white partners. White students continued to prefer white partners (although not quite so overwhelmingly as in the rewarded work situation), and black students shifted to a clear preference for black partners. This social choice pattern and the very different work partner choice pattern have in common a low level of <u>reciprocal</u> cross race tendency by black and white students. The expected behavioral outcome in each case is one of interaction primarily within racial groups.

The statistical tendency for white children's <u>social</u> partner preferences to relate to perceived ability may be partly attributable to the fact that, for whites, same-race and high-ability choices tend to coincide. (Race matching

did appear to be a factor in social choices by black students). There are, however, other bases for anticipating a correlation between perceived ability and partner preference, despite the lack of any obvious utility for math ability in a social situation. For example, if high-achieving white children customarily work with other high-achieving children, who tend also to be white, their friendship patterns will undoubtedly reflect those ongoing relationships.

It also seems reasonable to expect that academic ability (especially perceived academic ability) may be correlated (via its relationship to social class) with behavioral and verbal style characteristics which influence partner choice. If we interpret the relationship in this way, then our data suggest that high ability may be related to styles which tend to be preferred more by middle-class whites than by lower-class blacks [24] (although the data give no indication that blacks generally prefer characteristics associated with low ability).

Our analyses of the relatively rare "physically aggressive" classroom behaviors, as well as the overall tone of all peer interactions, are indicative of black-white stylistic differences which could influence peer relationships (cf Hartup, 1974). We should stress that, within the classroom settings which we observed, negative peer behaviors were equally rare for black and for white subjects, despite our deliberately broad and inclusive criteria for coding behavior as negative. A possible stylistic difference does appear, however, in the tendency for white subjects, more so than blacks, to have their behaviors coded "positive" rather than neutral. Our data do not permit us to be any more precise about the exact nature of this difference; it may be nothing more than a tendency for the white students to smile more noticeably as they interact with peers. Such differences may possibly reflect affect based upon degree of success in the academic setting rather than general differences in culturally transmitted style.

Although we found no tendency for black students' behaviors to be any more negative than those of white students overall, we did find a relatively higher frequency of implied or actual "aggressive" behavior on the part of blacks. (Despite the relative difference, the absolute frequency of such behaviors in these classroom settings was very low). We must stress again that behaviors coded as physically aggressive were not necessarily negative in intent, and indeed often appeared to the observers to be playful. Unfortunately, we did not feel that we could reliably discern the intent of such behaviors; consequently, all behaviors which were aggressive in form were coded as aggressive.

The same ambiguity which beset us is likely to be a complicating factor in the students' own relationships. An earlier experimental study with sixth grade boys in this same school (Sagar & Schofield, in press) found that white boys often interpret ambiguously aggressive peer behaviors more negatively than black boys do, reading more threat and hostile intent into them. In marked contrast to the black subjects in that study, the white subjects assumed that the ambiguously aggressive actors were stronger than their targets and that the targets were fearful. What white students saw as vaguely threatening displays of physical strength, the black students apparently interpreted as manifestations of an active or assertive style.

We did not find in the present study any evidence that black or white students modified their tone or style according to the race of the children with whom they interacted. One practical implication of the black students' behavioral consistency, though, is that the white students experienced proportionately fewer conventionally positive behaviors and proportionately more aggressive behaviors from their black classmates than from their white classmates. These possibly misunderstood or unwelcome stylistic differences may have combined with the previously discussed academic resource gap to encourage

a white aloofness variously interpreted by black students as fear, conceit, or snobbery.

In summary, we do not agree with the view expressed by some of Wexler's teachers that the students' pervasive self-segregation tendencies are merely a "natural" and harmless reflection of their divergent backgrounds and interests. Neither does this informal segregation appear to be wholly voluntary on the part of lower-achieving black students. Our data suggest that classroom racial aggregation importantly reflects a serious academic resource inequality: Black students generally appear more willing than whites to engage in interracial interaction for academic purposes. In the presence of external incentives, however, black students understandably tend to share the white students' reluctance to make significant ventures across the cultural and status gap. A degree of mutual discomfort at the prospect of anything more than surface contact can be seen in the outcome of the intimacy manipulation in the sociometric portion of our study. Both black and white students expressed greater preference for same-race work partners when the tasks involved close personal contact than when it did not. Ironically, it is just such contact which offers the best prospect for reducing sound barriers and fostering positive interpersonal relationships (Cook, 1969).

Situational Variations

Although we have noted several factors which can impede the development of a socially integrated classroom, we have also seen that black and white children's interaction preferences are highly malleable, responding to variations in the social and incentive structure. In the present study, this malleability was seen most clearly in the sociometric choice patterns of the black students; our ability-linked reward manipulation, like traditional academic incentives, simply exacerbated white ingrouping tendencies. Even so, there was more interracial interaction in the observed classroom settings,

where blacks and whites were inevitably brought into at least surface contact, than has been found in many less structured, non-academic settings. In particular, where association with good friends is the primary goal, interaction between middle class whites and lower class blacks ordinarily will be quite rare. For example, in our earlier study of cafeteria seating patterns at Wexler (Schofield & Sagar, 1977), we found only a handful of students sitting next to other-race peers on any given day. Similarly, Silverman and Shaw (1973) observed interracial interactions among newly desegregated junior and senior high school students leaving their schools for the day, finding that only 0.7 to 10.3 percent of these interactions were interracial. The malleability of white children's interactant choice patterns is likely to be more apparent in settings which highlight certain non-academic resources. For example, Gerard, Jackson, and Conolley (1975) discovered that desegregated black preadolescent boys with very low sociometric status as work partner and friendship choices often enjoyed high sociometric status as potential sports teammates of their white classmates. For perhaps similar reasons, white elementary school boys in another study directed their peer behaviors predominantly toward black classmates during recess periods (Rogers & Miller, 1980).[25] This common interest in sports and the value that most young males place upon physical prowess may help explain why boys are so consistently found to engage in more interracial interaction than girls, even in academic classrooms, where relationships established in other settings might be expected to carry over to some extent. Examples of other kinds of cooperative interracial interaction, which depend upon neither the academic or athletic resources of the participants, can be found in Schofield and McGivern (1978).

Classrooms, in comparison to less structured settings, offer a number of potential advantages for fostering social integration. First, and very importantly, classrooms are usually closely supervised, minimizing the likelihood of overtly negative peer interactions. Secondly, they bring together

within a restricted space a small and relatively stable group of black and white students who, even under conditions of superficial contact, can be expected to develop some awareness of one another as distinct individuals. The absence of these two features--supervision and identifiability--in hallways, lavatories, school grounds, etc. surely is a major factor in students' negative interracial experiences and perceptions.

Not only do these non-classroom settings provide more opportunities for experiencing or observing negative behavior, the relative anonymity of the many students moving through these settings should increase the salience of racial cues since other, more individuating, information will usually be unavailable to incidental interactants or their observers. Consequently, a person whose behavior is interpreted negatively may not be remembered as an individual (Taylor, Fiske, Etcoff, and Ruderman, 1978); and the observed behavior, particularly if it seems extreme, is likely to contribute disproportionately to the students' generalized images of the relevant racial group(s) (Rothbart, Fulero, Jensen, Howard, & Birrell, 1978). The classroom, in contrast, is a relatively safe place for students to get to know each other. Any negative behaviors which do occur within the classroom are more likely to be attributed to specific individuals rather than to the racial category they represent.

The fact that academic sessions tend to be relatively structured also provides a potential though usually unexploited advantage in the pursuit of social integration. In an earlier paper (Schofield and Sagar, 1979), we described several rather elementary structural considerations by which teachers can intentionally or inadvertently influence the amount and quality of interracial interaction, including some retrospectively obvious but frequently unconsidered questions about seating policy. For example, students left entirely free to choose their own seats will frequently manifest highly

segregated seating patterns, as seen in our cafeteria seating study (Schofield & Sagar, 1977) and in the ethnographic work on Wexler (Schofield, forthcoming). Such racial aggregation tends to be maximized when students are permitted to choose their own seats and then required to remain in their seats throughout the class period or when their voluntary beginning-of-the year seating pattern is subsequently formalized by the teacher as an assigned pattern. Homogeneous ability groupings also can produce highly segregated seating if there is a pronounced black-white achievement gap within the student population. In contrast, random or alphabetical assignment of seats, or heterogeneous ability groupings, serve to maximize the students' opportunities for interracial contact (Schofield & Sagar, 1979, Schofield, 1980).

Schofield (in press-b) noted that black and white students at Wexler usually had little difficulty in cooperating with each other when the situation called for it, as long as they both were able to contribute positively to the exchange. For example, black and white students who sat near each other, either by choice or by assignment, were often willing to share or exchange objects such as dictionaries, calculators, grooming aids, or snacks. Also, it was not uncommon to see them jointly cleaning up work tables or helping to create posters and other decorations.

Furthermore, the data in our present study indicate that interracial interaction propensities are quite responsive to external incentive structures. Unfortunately, as we have noted, conventional individualistic academic rewards often combine with perceived achievement inequality to inhibit interracial academic cooperation. In an implicitly competitive atmosphere, high-achieving students are often extremely reluctant to share valued information with others who cannot reciprocate. We believe that this situation reflects a particularly unfortunate deployment of the academic classroom's incentive-structuring

capabilities relative to the goal of social integration. Conventional academic incentive structures can be doubly cruel in that they tend to foster incompatible interaction goals among high- and low-achieving students.

Fostering Racial Integration

The remedies for this type of structural imbalance are becoming increasingly well-known. Slavin (in press) has reviewed several studies of variously structured student learning teams designed to induce relatively equal-status academic cooperation among team-mates of unequal ability. The "jigsaw" method (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978) retains the traditional individualistic reward structure but makes team members interdependent by giving each of them only part of the information required to complete their academic tasks. The techniques used by Slavin and his colleagues (DeVries, Edwards, & Slavin, 1978; Slavin, 1977, 1978) employ a group reward structure, so that each team member's grade depends upon the total performance of all team members. Slavin's (in press) review indicates that use of either type of team learning approach is likely to produce improved intergroup relations over time. The procedures should be attractive to teachers because they also tend to enhance the independently-assessed academic performance of the lower achieving students without impairing that of their higher-achieving teammates.

These positive results have been obtained, for the most part, by limited use of cooperative techniques within a more traditional individualistic content. More attention needs to be given to developing a variety of techniques which might then characterize a larger part of the total learning program. Modes of cooperation not directly dependent upon the students' academic skills and information, such as those discussed by Schofield (in press-b) ought also to be further explored and encouraged. For example, Cohen and Roper (1972) described

and tested a procedure in which low status minority children were taught a skill which they in turn taught to white children. More recently Cohen (1980) has advocated structuring classroom tasks so that they tap multiple abilities, thereby diffusing the clear academic status hierarchy which so often differentiates lower-class minority students from middle-class whites. Finally, to the extent that children can be encouraged to share information of a slightly more personal nature (hobbies, experiences, likes and dislikes, etc.), more positive and less self-conscious intergroup relations should evolve (Amir, 1975, Cook, 1969).

That preadolescents may have some initial inhibitions about sharing such information across racial lines was apparent in our sociometric data. We also noted, however, that race matching was less of a consideration for students in the high-intimacy rewarded work situation than in the purely social situation, highlighting once again the potential power of academic incentive structures. Such approaches need not always be heavy-handed to be successful; our earlier paper (Sagar & Schofield, 1979) cites a specific instance of an academic procedure which occasioned voluntary sharing of mildly personal information across race (and gender) lines.

The Gender Barrier

In contrast to the highly politicized issue of racial desegregation, the very clear gender barrier in preadolescent children's relationships rarely occasions more than passing notice among either researchers or educators. Teachers at Wexler, who rarely acknowledged race to be a legitimate component of their students' social identities, freely used gender labels to identify, to characterize, and occasionally to group students. The students themselves were often quite overt, and occasionally adamant, about their use of gender as a criterion for peer association and exclusion (Schofield, in press-a).

The gender gulf, perceived by students to be almost unbridgeable, cannot be attributed to social class, neighborhood, or academic differences, although Wexler's white girls in particular enjoy somewhat higher academic status than their male counterparts. Rather, student interviews indicate that these preadolescent boys and girls believe they simply have nothing in common:

> Interviewer: I've noticed in the lunchroom that very often boys sit together and girls sit together. Why do you think that is?
>
> Bob: So they can talk. The boys talk about football and sports and the girls talk about whatever they talk about (Schofield, in press-a).

Why has this pervasive social segregation of the sexes occasioned so little comment relative to the very legitimate expression of concern about racial aggregation in the same schools? One frequently stated belief among lay people is that the preadolescent sex barrier is both natural and temporary. Indeed, in contrast to racial aggregation, which tends to remain high throughout the school years (Schofield, 1980b), Hartup (1970) found that gender isolation usually peaks during the late elementary and early junior high school years. Our own cafeteria seating data are consistent with that analysis, in that we found somewhat less gender aggregation among the eighth graders than among the sixth graders (Schofield & Sagar, 1977).

Romantic and sexual attraction are certainly major components of the increase in male-female interaction over time, although we are not aware of any systematic analysis of the extent to which such attraction accounts for the increase. Interviews and field observations make it clear that Wexler's sixth graders are already anticipating future romantic involvement; furthermore, a large proportion of those cross-sex interactions which do occur among these youngsters can be characterized as indirect (and often awkward) expressions of romantic interest. Teachers, as well as students, tend to think of boy-girl relationships in terms of romantic interest:

> Interviewer: What kinds of interactions are there between boys and girls at Wexler?
>
> Ms. Ellis: Mostly it's caveman stuff. . . . There's probably only about six to eight sexually active girls in my classes (Schofield, in press-a).

Ironically, the students' emerging romantic interests, together with the common tendency to read such interests into any girl-boy relationship, serves to inhibit task-oriented cross-sex interaction. For example, Schofield (in press-a) reported that some students avoided selecting opposite-sex work partners for fear that the relationship would be misinterpreted as a romantic one. She cited an incident in which a sixth-grade boy accepted punishment from his teacher rather than agree to work on a project with two female classmates. In a similar vein, our sociometric data indicate that, even in the case of an academic task promising attractive prizes, sex matching was as great or greater a consideration than perceived ability in partner selection. Thus it seems that these preadolescent cross-gender relationships fail even to fulfill Cohen's (1975) modest criteria for a "reasonable degree of social integration" (originally specified in regard to cross-race relationships),

> whereby (girls and boys), given an objective important to both, can trust each other and listen to each other sufficiently well to complete the task at hand (p. 273).

The awkwardness of cross-sex interaction among preadolescents appears to be reflected in our quantitative analysis of peer interaction tone: Cross-sex interactions were proportionately more likely than within-sex interactions to be coded "negative." (Of course, compared to within-sex interactions, cross-sex interactions of any type were fewer in number). Campbell (1980), using a very different coding scheme in a tri-ethnic elementary school, obtained a similar finding.

The "negative" cross-sex behaviors found in our study were hardly ever physical in nature. In the classroom settings at least, boys and girls of

both races generally abided by the cultural taboo against hitting girls. While females in particular appeared to be virtually exempt from both the playful and the hostile aggressive interactions which took place around them.

As our earlier discussion implied, many cross-sex behaviors coded as "negative" could be interpreted as indications of romantic attraction rather than of hostility. Interestingly, the female subject, male interactant combination was the highest of all pairings (though not statistically significantly so) in the proportion of negative and of positive behaviors, with neutral or matter-of-fact behaviors being relatively rare. This was more true for the white females than for the black females, although we are talking about a very small number of subjects and interactions. The statistical status of this "finding" is admittedly shaky, but the pattern is intriguingly consistent with Schofield's (in press-a) earlier descriptive account of the virtual lack of any relaxed or sustained male-female peer interaction among Wexler's sixth graders.

Our very tentative suggestion that the lack of neutral, or matter-of-fact, cross-sex interactions may be more characteristic of white than black females is buttressed by the finding that gender aggregation was somewhat less pronounced among the black students generally: our black subjects interacted across gender lines more often than our white subjects did. Unfortunately, the present data do not permit us to say whether cross-sex relations are more relaxed among the black students, or whether the relatively higher cross-sex rate for these students simply reflects a more highly developed romantic interest among these sixth graders than among their white classmates.

Even more so than in the case of racial clustering, the problem is not so much to discover how to reduce sex segregation as to recognize the need to do so. Our studies have persuaded us that there is indeed a significant

social barrier between preadolescent males and females, and not simply a temporary and harmless divergence of interests. We take little comfort in the certainty that, as these boys and girls mature, they will begin to seek out each other's company with greater eagerness. Rather, an important social lesson seems to us to have been lost if men and women have to come to know each other as love interests without first having discovered each other as peers. "Romantic love" by itself is increasingly recognized by social psychologists as too ephemeral to provide a foundation for a lasting relationship. Furthermore, we deprive ourselves of many potential sources of intellectual and emotional enrichment if we limit our close relationships to lovers and same-sex peers.

Fostering Gender Integration

In some ways, the task of facilitating cross-sex social integration seems less imposing than do the issues posed by racial isolation. Boys and girls already live in the same neighborhoods, even in the same families. There is no appreciable academic or social class gap to be bridged. On the other hand, powerful social norms encourage boys and girls to think of themselves as fundamentally different and to limit their non-courtship activities to same-sex peers. Boys and girls who work, talk, or play together are likely to have their intentions misunderstood by their peers, or even by their opposite-sex partners.

Carefully structured classroom practices and procedures have a tremendous potential to alter the situation, not just by providing incentives for cross-sex interaction and cooperation, but also by breaking down the implied connection between cross-sex interaction and romantic attraction. Boys and girls who, like others in the class, have been <u>assigned</u> to sit or

work together do not need to worry that casual conversation or cooperation will be interpreted as courtship behavior. And, to the extent that cross-sex interaction becomes normative and unremarkable, boys and girls who do have more than a passing interest in each other may not have to resort to "caveman" tactics to gain attention or gratification.

Despite pervasive social barriers, boys and girls, as well as blacks and whites, can be encouraged to interact in their classrooms and to benefit from those interactions. In a rare experiment addressing both these issues, DeVries and Edwards (1974) found that putting black and white males and females on the same cooperative learning teams improved both cross-race and cross-sex communication. More research is needed (as they say), both to further understand the short- and long-term implications of informal race and sex segregation and to further develop the techniques for enhancing social integration. Nevertheless, the need is sufficiently clear, and the techniques sufficiently understood, that significant alteration of traditional classroom social structures should begin now.

BIBLIOGRAPHY

Amir, Y. The role of intergroup contact in change of prejudice and ethnic relations. In P. A. Katz (Ed.), Towards the elimination of racism. New York: Pergamon Press, 1975.

Aronson, E., Blaney, N., Stephan, C., Sikes, J., and Snapp, M. The jigsaw classroom. Beverly Hills, California: Sage Publications, 1978.

Campbell, A. White attitudes toward black people. Ann Arbor, Michigan: Ann Arbor Institute for Social Research, 1971.

Campbell, P. B. Student interaction: The importance of race and sex. Paper presented at the Annual Meeting of the American Educational Research Association, Boston, April, 1980.

Carter, D. E., DeTine, S. L., Spero, J., & Benson, F. W. Peer acceptance and school-related variables in an integrated junior high school. Journal of Educational Psychology, 1975, 67, 267-273.

Cohen, E. The effects of desegregation on race relations. Law and Contemporary Problems, 1975, 39 (2), 271-299.

Cohen, E. G. Design and redesign of the desegregated school: Problems of status, power, and conflict. In W. G. Stephan and J. R. Feagin (Eds.), School desegregation: Past, present, and future. New York: Plenum, 1980.

Cohen, E., & Roper, S. Modification of interracial interaction disability: An application of status characteristics theory. American Sociological Review, 1972, 36, 643-647.

Cohen, J. A coefficient of agreement for nominal scales. Educational and Psychological Measurement, 1960, 20, 37-46.

Cook, S. W. Motives in a conceptual analysis of attitude-related behavior. In W. J. Arnold and D. Levine (Eds.), Nebraska symposium on motivation. Lincoln: University of Nebraska Press, 1969.

Criswell, J. H. A sociometric study of racial cleavage in the classroom. Archives of Psychology, 1939, No. 235.

DeVries, D., & Edwards, K. Student teams and learning games. Their effects on cross-race and cross-sex interaction. Journal of Educational Psychology, 1974, 66, 741-749.

DeVries, D. L., Edwards, K. J., & Slavin, R. E. Biracial learning teams and race relations in the classroom: Four field experiments using Teams-Games-Tournament. Journal of Educational Psychology, 1978, 70, 356-362.

Farley, R. Residential segregation and its implications for school integration. Law and Contemporary Problems, 1975, 39 (2), 164-193.

Fishbein, M., & Ajzen, I. Belief, attitude, intention, and behavior: An introduction to theory and research. Reading, Mass.: Addison-Wesley, 1975.

Francis, W. D., & Schofield, J. W. The impact of race on interaction in a desegregated school. Paper to be presented at the American Sociological Association Convention, August, 1980.

Gerard, H., Jackson, D., & Conolley, E. Social contact in the desegregated classroom. In H. Gerard & N. Miller (Eds.), School desegregation. New York: Plenum Press, 1975.

Hartmann, D. P. Considerations in the choice of interobserver reliability estimates. Journal of Applied Behavior Analysis, 1977, 10, 103-116.

Hartup, W. W. Peer interaction and social organization. In P. H. Mussen (Ed.), Carmichael's manual of child psychology (Vol. 2), New York: Wiley, 1970.

Hartup, W. W. Aggression in childhood: Developmental perspectives. American Psychologist, 1974, 29, 336-341.

Holsendolph, E. Figures show integration lag. New York Times, June 20, 1976.

Krenkel, N. Self-concept and interaction patterns of children in a desegregated school. Unpublished master's thesis, California State University, San Francisco, 1972.

McConahay, J. The effects of school desegregation upon students racial attitudes and behavior: A critical review of the literature and a prolegomenon to future research. Law and Contemporary Problems, 1978, 42 (3), 77-107.

McNemar, Q. Psychological statistics, 4th edition. New York: Wiley, 1969.

Moreno, J. L. Who shall survive? A new approach to the problems of human interrelations. Washington, D. C.: Mental Disease Publishing Co., 1934.

National Advisory Commission on Civil Disorders, U. S. Government Printing Office, Washington, D. C., 1968.

National Institute of Education. Resegregation: A second generation school desegregation issue. Unpublished manuscript, Desegregation Studies Unit, Washington, D. C., 1975.

Patchen, M., & Davidson, J. D. Patterns and determinants of inter-racial interaction in the Indianapolis public high schools. Final report, 1973. (ERIC Document 095 252, 1974).

Pettigrew, T. The Negro and education: Problems and proposals. In I. Katz and P. Gurin (Eds.), Race and the social sciences. New York: Basic Books, 1969.

Read, F. Judicial evolution of the law of school integration since Brown v. Board of Ed. Law and Contemporary Problems, 1975, 39 (1), 7-49.

Rogers, M., & Miller, N. Quantitative and qualitative differences in selection of peers in a desegregated school. Paper to be presented at the 88th Annual Convention of the American Psychological Association, Montreal, 1980.

Rothbart, M., Fulero, S., Jensen, C., Howard, J., & Birrell, P. From individual to group impressions: Availability heuristics in stereotype formation. Journal of Experimental Social Psychology, 1978, 14, 237-255.

Sagar, H. A., & Schofield, J. W. Racial and behavioral cues in black and white children's perceptions of ambiguously aggressive acts. Journal of Personality and Social Psychology, in press.

St. John, N. School desegregation: Outcomes for children. New York: Wiley, 1975.

St. John, N., & Louis, R. Race and the social structure of the elementary classroom. Sociology of Education, Summer, 1975, 48, 346-368.

Schachter, S. Deviation, rejection and communication. Journal of Abnormal and Social Psychology, 1951, 46, 190-207.

Schofield, J. W. Social process and peer relations in a "nearly integrated" middle school (NIE contract No. 400-76-0011, 1977). Final project report, 1977.

Schofield, J. W. School desegregation and intergroup relations. In D. Bar-Tal & L. Saxe (Eds.), Social psychology of education: Theory and research. Washington, D. C.: Hemisphere Press, 1978.

Schofield, J. W. The impact of positively structured contact on intergroup behavior: Does it last under adverse conditions? Social Psychology Quarterly, 1979, 42, (3), 280-284.

Schofield, J. W. Complementary and conflicting identities: Images and interaction in an interracial school. In S. Asher & J. Gottman (Eds.), The development of friendship: Description and intervention. New York: Cambridge University Press, in press-a.

Schofield, J. W. Barriers to intergroup cooperation: The impact of unequal resources and ingroup preference on task-oriented behavior. In S. Sharon, P. Hare, C. Webb, & R. Lazarowitz (Eds.), Cooperation in education: Interdisciplinary perspectives. Salt Lake City, Utah: Bringham Young University Press, in press-b.

Schofield, J. W. Desegregation, school practices and student race relations outcomes. Unpublished paper. University of Pittsburgh, 1980-a.

Schofield, J. W. The development of intergroup attitudes. Unpublished manuscript. University of Pittsburgh, 1980-b.

Schofield, J. W. Behind closed doors: Race relations in an American school. New York: Praeger, forthcoming.

Schofield, J. W. & McGivern, E. P. Creating interracial bonds in a desegregated school. In R. G. Blumberg & W. J. Roye (Eds.), Interracial bonds. Bayside, N.Y.: General Hall, Inc., 1979.

Schofield, J. W. & Sagar, H. A. Peer interaction patterns in an integrated middle school. Sociometry, 1977, 40, 130-138.

Schofield, J. W. & Sagar, H. A. The social context of learning in an interracial school. In R. C. Rist (Ed.), Desegregated schools: Appraisals of an American experiment. New York: Academic Press, 1979.

Shaw, M. E. Changes in sociometric choices following forced integration of an elementary school. Journal of Social Issues, 1973, 29, (4), 143-157.

Silverman, I., & Shaw, M. E. Effects of sudden mass desegregation on interracial interaction and attitudes in one southern city. Journal of Social Issues, 1973, 29, (4), 133-142.

Simon, A., & Boyer, E. G. (Eds.), Mirrors for behavior. An anthology of classroom observation instruments, Vol. 5. Philadelphia: Research for Better Schools, 1967.

Singleton, L. C., & Asher, S. R. Peer preferences and social interaction among third-grade children in an integrated school district. Journal of Educational Psychology, 1977, 69, 330-336.

Singleton, L., & Asher, S. Racial integration and children's peer preferences: An investigation of developmental and cohort differences. Child Development, 1979, 50 (4), 936-941.

Slavin, R. E. How student learning teams can integrate the desegretated classroom. Integrated Education, 1977, 15 (6), 56-58.

Slavin, R. E. Effects of biracial learning teams on cross-racial friendship and interaction (Report No. 240). Center for Social Organization of Schools, The Johns Hopkins University, 1978.

Slavin, R. E. Cooperative Learning. Review of Educational Research, in press.

Stember, C. H. Sexual racism: The emotional barrier to an integrated society. New York: Elsevier, 1976.

Stephan, W. G. School desegregation: An evaluation of predictions made in Brown vs. Board of Education. Psychological Bulletin, 1978, 85, 217-238.

Taylor S., Fiske, S., Etcoff, N., & Riderman, A. Categorial and contextual bases of person memory and stereotyping. Journal of Personality and Social Psychology, 1978, 36 (7), 778-793.

Weigel, R. H., & Newman, L. S. Increasing attitude-behavior correspondence by broadening the scope of the behavioral measure. Journal of Personality and Social Psychology, 1976, 33, 793-802.

Wicker, A. W. Attitudes versus action: The relationship of verbal and overt behavioral responses to attitude objects. Journal of Social Issues, 1969, 25 (4), 41-48.

FOOTNOTES

[1]It is noteworthy that one of the few "roster rating" studies in which students rated each of their classmates did not find race to be an important determinant of reported likeability (Carter, DeTine, Spero, & Benson, 1975).

[2]Direct comparison between studies is impeded, however, by the fact that the students in the Singleton and Asher study were in the third grade, whereas junior high age children have been the focus of the majority of the other quantitative observational studies. This age difference is important because there is some evidence suggesting that racial isolation often increases in the late elementary and early junior high school years (Criswell, 1939; St. John, 1975).

[3]Naturally, not all classrooms provide such an opportunity. Our criteria for selecting classes to observe are described in the method section.

[4]One team, which has purposely sought to equalize the sexual and racial composition of its five groups, supplied four of the seven groups selected for study. The other two teams grouped students partially on academic criteria. White students were overrepresented in a few classes and vastly underrepresented in others. Three classes from these two teams initially met our composition criterion and were selected for observation. (One of these classes eventually lost two of its three white females and was therefore not included in the major analyses, but we continued observation in order to complete our assessment of coding agreement between the two observers who has been assigned to it).

[5]In cases of joint observation, data from only one observer were included in the general analyses. The decision as to which observer's data to use was in each case based upon our goal at approximating a balanced observation schedule.

[6]For each recorded interaction we attempted to identify and record one primary interactant. Where multiple interactants were equally involved, the single interaction was allocated fractionally to the various interactant categories represented. For example, if the subject interacted equally with one white girl, two black girls, and the teacher within a single coding interval all interactants were recorded and we subsequently counted 1/4 of an interaction with a white female peer, 1/2 with a black female peer, and 1/4 with an adult, thus adding .75 to the overall peer interaction total.

[7]The adjustment was made by entering the number of intervals a subject was observed as the covariate.

[8]This pattern undoubtedly reflects, in part, our decision to observe classes whose teachers left the students largely free to determine their own interactant choices. (Ziomek, Wilson, and Ebmeier, 1980, found a similar lack of relationship in a sociometric study). Such practices as alphabetically assigned seating or formation of mixed work groups should induce a much greater relationship between class composition and actual interaction patterns (as well as more intergroup interaction; see Schofield & Sagar, 1979).

[9]Reported percentages and proportions are actually collapsed means, with the component cell means weighted equally.

[10]We did in fact repeat the analyses reported in the previous section counting only those interactions in which the subject directly participated within the coding interval (i.e., those in which Source was coded "subject"

or "mutual"). This modification produced only trivial changes in the cell means shown in Table 3 and no change at all in the reported patterns.

[11]Interactions were recorded as "mutual" only when both parties engaged in the coded behavior within the five second observation interval.

[12]The analyses reported in this and the two subsequent sections focus on the nature of the behaviors which members of the four subject groups directed toward members of the four interactant groups. Consequently, only those interactions in which Source was coded either "subject" or "mutual" are included in the analyses.

[13]Not only did this viewpoint come easily to our middle class observers, but it also appears to correspond roughly to teachers' and administrators' usual definitions of appropriate student behavior.

[14]If we had not used such a broad definition, the rate of "negative/aggressive" behavior would have been even lower than the extremely modest rate reported here.

[15]Interpretation of this potentially interesting distinction between the influence of Subject Race and that of Interactant Race is clouded by the results of an earlier analysis in which we had not distinguished subject behaviors directed toward interactants from interactant behaviors directed toward subjects. There was no clear conceptual distinction in this earlier analysis between a task interaction involving (for example) a black subject and white interactant, on the one hand, and a white subject and black interactant on the other; nevertheless, the pattern of results was identical to that reported above. The sociometric study, to be presented later in this paper, distinguishes more precisely between the chosen and those who choose them, thus clarifying this issue of black-white task and non-task relationships.

[16]A separate exploratory analysis of positive physical interactions (e.g., patting a peer on the back, huddling together) revealed no clear or interesting patterns.

[17]This finding is not a mere reflection of the tendency of males, the more physically aggressive gender group, to interact primarily with other males. In fact, when physically aggressive behaviors were analyzed as proportions of all behaviors directed toward each interactant group, this same Interactant Sex effect was the only significant finding.

[18]This study was designed and carried out by Howard Snyder in collaboration with Janet Schofield. Mr. Snyder also performed the regression analyses reported here. He is not however, responsible for the analysis of variance or for the interpretations expressed in the present report.

[19]A fifth class also received the low intimacy instructions but it was not included in the analysis because it consisted primarily of black males, with no white females at all.

[20]The apparent tendency to underestimate the difference between black and white students proved to be a simple case of regression toward the mean, with higher-scoring students tending to be rated slightly downward, and lower-scoring students slightly upward, regardless of their race.

[21]The intimacy manipulation, in general, produced few statistically significant effects in this analysis. For the sake of simplicity, then, reported means have been collapsed across the two intimacy conditions.

[22]The analysis of variance showed that Interaction Type interacted with Partner Race, F (1, 155) = 72.59, $p < .001$, with Partner Sex, F (1,155) = 6.86,

$p = .01$, and with Partner Race x Partner Sex F (1, 155) = 4.86, $p < .05$, the latter effect reflecting in particular the increased ratings received by white females in the work situation.

[23]Our offer of tangible rewards for joint success in the anticipated task undoubtedly heightened the salience of academic ability, thereby exaggerating the degree of general preference for white work partners. Nevertheless, perceived ability can hardly be said to be an unimportant factor in students' peer relationships. Schofield (in press-b) cited several illustrations of the impact of the perceived academic resource gap upon classroom peer behavior at Wexler.

[24]St. John and Lewis (1975) also found academic achievement to be more predictive of popularity with white than with black six graders.

[25]Comparisons must be qualified by the fact that about half of both the black and the white children in the class studied by Rogers and Miller (1980) were academically gifted (IQ $\leq$ 132).

[26]We did record a few instances of girls directing physically aggressive behaviors toward boys, however. Furthermore, some girls had indicated in interviews that to be "bothered" (e.g., pushed) by boys, presumably outside the classroom, was a sign of popularity (Schofield, in press-a).

[27]A parallel study in Wexler's academically accelerated eighth-grade classes found no racial difference in cross-sex interaction rates. We have no way of knowing, however, whether the romantic interests of the white students had caught up with those of the blacks by eighth grade or whether the absence of a black-white difference simply reflects a greater cultural and environmental similarity between these academically select black and white students.

APPENDIX A

Coding Instructions

S = Subject — The person whose behavior sample is being coded.

(Subjects will have been precoded in the left-hand column of the coding sheet).

I = Interactant — The individual or group (a) to whom the subject is directing behavior, (b) who is directing behavior at the subject, (c) to whom the subject is attending, or (d) with whom the subject is interacting.

(For priorities in cases where (a), (b), (c), and/or (d) are occurring simultaneously, see supplementary instructions).

When there is no interactant, the behavior is coded as "solitary."

S = solitary

In the case of solitary behavior, it is not necessary to code Form, Source, or Tone. Task Orientation should be coded, however.

When there is a single peer interactant, code the interactant's race and sex as follows:

1 = white male
2 = black male
3 = white female
4 = black female

When the interactant is a group of peers, record the race-sex code of each individual in the group.

(Example: 11213 = 3 white males, a black male, and a white female).

If one person appears to be the primary interactant during the 5-second observation period, code just that individual, even though other group members may be attending to the interaction or may have been participating just before or after the 5-second period.

When the primary interactant is the teacher (student teacher, substitute teacher, tutor, aide, administrator, or other academic authority figure), code:

T = teacher

Student behavior directed toward the teacher is often accessible to, or partly intended for, other students as well. The observer must decide whether the teacher is the primary interactant (the person to whom the behavior is primarily directed), or just one among others. The following two examples assume that the teacher is sitting at a table with the target and two black females:

Behavior	Interactant Code
Subject reads aloud as teacher and peers listen, in what appears to be a tutorial situation.	T
Subject appears to be telling a joke for the benefit of all at the table.	44T

When the subject's attention, communication, or behavior is directed, not toward a particular individual or group, but rather toward (a) anyone who cares to notice, (b) a group too large to identify, or (c) the entire class, it is coded as "public."

P = public

A "public" code does not require that anyone actually be attending to the behavior, but only that it appear to be intended for public consumption. Thus, singing softly to oneself will usually be coded as "solitary" behavior, whereas singing out loud (to no one in particular) will usually be coded as "public" behavior.

Examples of public behavior:

S belches loudly (inappropriate attention-getting behavior).

S calls out, "Did anyone get the answer to number 4?"

S re-enacts a scene from "Starsky and Hutch" for the benefit of nearby students (a group with no clearly discernible boundaries).

S presents an oral report to the entire class.

If the interactant is the observer or another outsider, simply note that fact in the "I" column and code the behavior.

Form.* Refers to the mode or medium of the interaction.

NV = Nonverbal. Interaction or communication between S and I occurs via nonverbal channels such as S's facial expressions, hand movements, body posturing, etc., or S's attending to I's nonverbal expressions as evidenced by the establishment of eye contact, orienting or attending responses or behaviors. Nonverbal expressions of affect which have no intended audience should be scored in the "solitary" category and not in this category (which implies social interaction).

V = Verbal. Interaction or communication between S and I occurs via verbal channels. S talking to I. S listening to I. S's dialogue with I. Moving lips are sufficient for coding behavior as verbal. One does not necessarily have to hear the interchange. When both nonverbal and verbal interaction occurs, this category only is scored.

Obj = Object. S's interaction with I involves the exchange or sharing of objects or resources such as pencils, books, gum, combs, etc. Also, when S's interaction with I involves a dispute over object(s) or resources. When verbal and/or nonverbal, and object-related interaction between S and I takes place simultaneously, this category only is scored.

Phy = Physical. S's interaction or communication with I involves physical contact such as touching, tickling, tapping, hitting, grabbing, pushing, etc. Verbal or nonverbal threat of physical contact (e.g., threatening to beat someone up after school, throwing punches which come up just short of hitting someone's face, etc.). Struggling with another over an object (with or without physical contact). Behaviors which have a decided physical impact on another, even though they do not involve actual contact (pushing or kicking the chair in which someone is seated, "pulling" a chair from under a person who is about to seat themselves, etc.). When physical interaction takes place concurrently with some other form(s) of interaction (nonverbal, verbal, object-related), the physical category is scored only.

Source. Refers to the source of the coded behavior.

Em = Emit. (S→I). S is the primary source (within the 5-second observation period) of the coded behavior directed toward I (Disregard S's role in relation to any other behavior which may have been eliminated from coding under the rules on pp. 7-8).

*Only the physical/non-physical distinction was utilized for the present report.

Examples of "emit":

(a) S attempts to initiate interaction with I

(b) S bids for attention or engages in "Public" behavior.

(c) S gives or seeks to give an object, information, resources, or assistance to I.

(d) S seeks to receive object, information, resources, or assistance from I.

(e) S unilaterally directs non-verbal, verbal, or physical behavior toward I.

(f) S and I engage in an interaction in which S is clearly dominant (the more forceful or noticeable actor) as in the following examples:

(1) S energetically clowns around for I while I smiles appreciatively.

(2) S locks I into an effective wrestling hold as I resists weakly.

Rec = Receive (S←I).
I is the primary source (within the 5-second observation period) of a coded behavior directed toward S, as in (a), (c), (d), (e), and (f) above.

Mut = Mutual. S↔I).
S and I direct "equivalent" behaviors (in terms of our coding hierarchy) toward each other within the same coding interval. (If S's and I's behaviors are not equivalent, code the behavior which takes precedence under the hierarchy rules. It should be coded "emit" or "receive," depending upon whether it is performed by S or I).

Tone. The quality of the coded behavior, as defined below.

\+ = Positive/friendly/cooperative

Friendly smiles; animated behavior

Voluntary, non-instrumental, non-aggressive bodily contact

Voluntary, non-grudging sharing or exchange of useful or valued materials (between students)

Cooperative interaction; giving or receiving assistance (between students)

Verbal behavior with positive content or accompanied by friendly smiles, appreciative laughter, animated interest, etc.

Any non-negative behavior accompanied by facial or verbal expressions of friendly intent (including clearly playful mutual wrestling or "tussling").

\- = Negative/unfriendly/aggressive

Behaviors commonly regarded by the dominant (middle class) American culture as "negative" or "unfriendly" or "aggressive" are to be coded in this category, regardless of the inferred affect of S or I. The following behaviors should be so coded, even if the coder suspects they are being performed "in fun."

Bothering or teasing

Hard hitting, pinching, poking, hair pulling (degree of force should be considered)

Physical threats (even if meant as a joke)

Grabbing, "stealing" (i.e., taking an object without the owner's explicit or implied consent)

Inappropriate attention getting behavior (e.g., shouting, making distracting noises, acting out)

Unfriendly verbalizations, name-calling

Frowns, scowls, obscene or insulting gestures

Ambiguous behaviors accompanied by negative verbal or facial expressions

0 = Neutral/ambiguous

The following behaviors are coded "0" unless verbal and/or facial cues indicate a positive or negative tone:

Mock fights (i.e., mutual feigned boxing without actual contact)

Arm wrestling

Competitive games

Lightly tapping person to get his/her attention

Verbalizations with neutral or unknown content

Task Orientation. Whether or not the coded behavior relates to a classroom task.

T = Task. Task-related interaction such as exchanges of task related information, advice, procedural suggestions, exchanges of task-related materials, and/or resources such as books, paper, pencils, etc. Task-related physical contact such as might occur in a gym class. Task should also be scored when it is highly probable that the activity taking place is task-related (such as a student pondering or reading or orienting towards a text book).

NT = Nontask. Nontask-related interactions. Interaction for social reasons, such as exchanges or greetings, stories, gossip, feelings about self or others, expressions of liking or dislike, etc. Exchanges of nontask-related materials such as gum, combs, etc. Physical contact for nontask-reasons such as showing affection (e.g., stroking) or dislike (e.g., hitting). Nontask should also be scored when it appears to be paying attention to or manipulating nontask materials, or using task materials in a nontask manner (e.g., tapping pencil on I's head).

Amb = Ambiguous. Interactions in which the focus is unidentifiable. Content may be coded in this category because nonverbal interactions are ambiguous, verbal interactions are not clearly heard, or the materials in an object exchange are not clearly seen or of an ambiguous nature.

Rules for employing the Form hierarchy

1. When both verbal and non-verbal behaviors occur simultaneously or within the same 5-second observation period, code "verbal."

2. Object-related behaviors (sharing, contesting, exchanging) are to be coded in preference to verbal and/or non-verbal behaviors in the same 5-second interval.

3. Physical behaviors take precedence over all other types of behaviors.

4. Behaviors lower on the hierarchy can legitimately be used as cues for inferring the tone of the coded behavior.

Examples:

(a) An ambiguous or inaudible verbal exchange accompanied by angry frowns will ordinarily be coded "verbal, negative."

(b) A light punch on the arm, accompanied by a friendly verbal greeting will ordinarily be coded "physical, positive."

5. If the subject emits a behavior at one level in the Form hierarchy and receives (within the same 5-second interval) a behavior at a different level, record the behavior which takes precedence according to the above rules and code Source, Tone, and Task Orientation based on that behavior.

Examples:

Behaviors	Code
S speaks to I while I makes faces at S.	Verbal, emit
S demands to use I's dictionary; I pushes S away.	Physical, receive
I calls S a "turkey" while S and I arm wrestle.	Physical, mutual

Rules for multiple behaviors having the same Form but differing in Tone

1. Positive behaviors take precedence over neutral/ambiguous behaviors.

2. Negative behaviors take precedence over positive or neutral/ambiguous behaviors.

Rules for two or more discrete behaviors with different interactants:

1. Where the behaviors are of different Form, employ the Form hierarchy to determine which should be coded.

2. Where the behaviors are of the same Form but different Tone, employ the Tone hierarchy to determine which should be coded.

3. Where the behaviors would be coded identically in all respects except for "Interactant," code as a single behavior directed toward a group (i.e., record each interactant).

4. Where the behaviors are of the same Form and Tone, but differ in Source or Task Orientation, code the behavior which appears to predominate during the 5-second observation period.

5. When none of the previous rules are applicable, code the behavior which occurred first within the interval.

All codes are to be based upon the one behavior which is selected under the above rules.

Coding Interval

Allow exactly 15 seconds for observing and coding each target's behavior. Each coding interval begins on the minute or quarter-minute, as indicated by the second-hand on your watch. If for any reason you are not able to begin

a given observation at the beginning of the interval, locate the target but do not begin observation until the onset of the subsequent 15-second interval.

Behavior occurring during the first five seconds of the interval constitutes the behavior segment to be coded. The following 10 seconds are used to record the observed behavior and to locate the next target. Behavior occurring during this 10-second period is not to be coded; it can, however, legitimately be used as a cue for clarifying any ambiguous aspects of the behavior observed in the first 5 seconds.

Examples:

1st 5 seconds	Following 10 secs.	Code
S is reading a textbook.	S nudges peer, points to passage in book, both students grin.	Solitary, task (only behavior from 1st 5 secs. is coded)
S makes what appears to be friendly comment to I.	I waves off S with a frown: S glares at I.	Verbal, emit, positive, probably non-task (unless context and/or other cues suggest otherwise) (Only behavior from 1st 5 secs. is coded)
S hands I a piece of paper; observer cannot discern nature of paper or S's affect.	I looks at paper, smiles at S.	Object, emit, positive, non-task (S's affect is inferred from I's response).